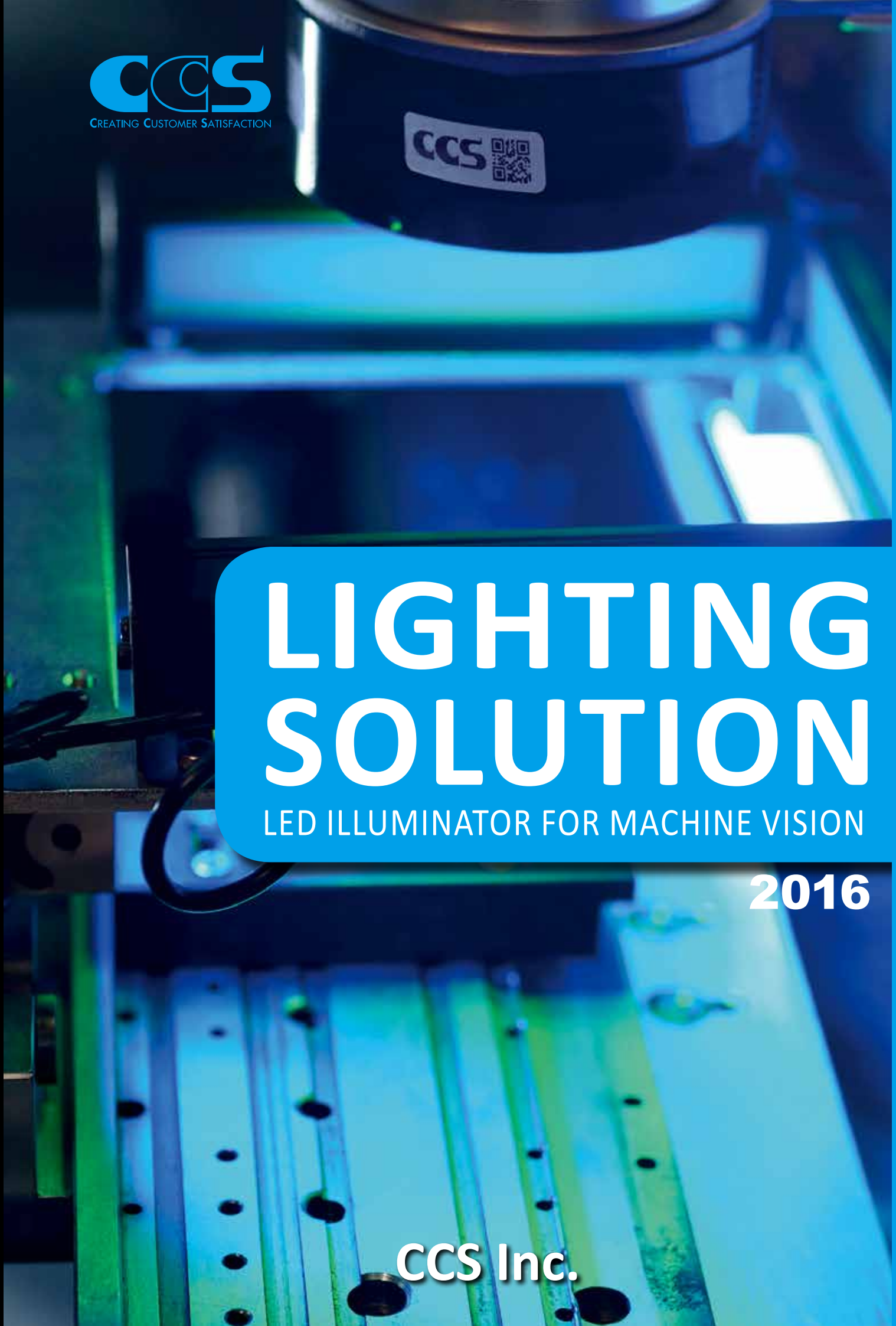


LIGHTING SOLUTION

LED ILLUMINATOR FOR MACHINE VISION

2016

CCS Inc.

What We Can Do,

Through our "lighting solutions," and manufacturing"

Based on the know-how and skills we have accumulated since our illuminating distance, and illuminating angle, to provide a

SERVICE

Lineup

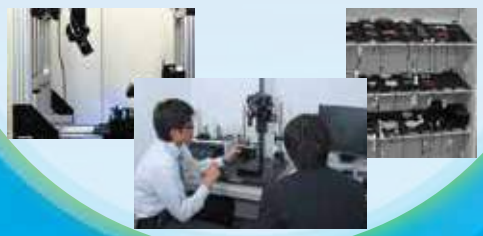
54 series and 1,090 models of LED Lights
13 series and 65 models of
dedicated Control Units
4 series and 34 models of lenses
315 models of optional parts
Through our extensive lineup with
a total of 1,504 models,
we provide products perfect for your needs.

Loan Products

"I want to evaluate the product before purchasing it."
To meet this kind of customer need,
we have prepared **well over 18,000** loan products.
You can use them "whenever," "wherever,"
and "however many times," free-of-charge.
Please see our products' functions,
performance, and quality for yourself.

Testing Room

"I want to evaluate the light, but don't have enough equipment."
In that case, use our company's testing room.
We can help you achieve the "optimal image"
using our products in an environment equipped with all the necessary materials, such as cameras and lenses.
Of course, you can use it free-of-charge.



What Only We Can Do

we contribute to "development throughout the world.

founding, CCS combines various elements, such as light wavelength,
"lighting solution" environment that is perfect for you.

Workpiece Testing

"I want to test on the workpiece,
but I'm busy and don't have time."
"I tried to use a loan product for evaluation,
but it didn't go well."
If that's the case, leave it to us. We will borrow a
workpiece from you and perform the experiment for you.
We use all the knowledge, experience, and information
we've gathered in the past as well as the latest technology
to provide the **"optimal image"** to meet your needs.
Of course, this is free-of-charge.

SUPPORT

Custom Orders

"The standard product doesn't have the right size."
"It's not bright enough."
If that's the case, in addition to our standard lineup,
we also accept custom orders.
We listen to your needs and create the "optimal light" for you.
In addition to lights, we even accept **custom orders** for
options, such as Control Units and cables.
We provide estimates, drawings,
and specifications, free-of-charge.

Global Network

18 offices worldwide
in places such as Japan, China, Taiwan, Thailand,
Singapore, the USA, and Belgium.

NEW RELEASE

Strobe Overdrive Control Unit　POD series

Strobe lighting.
Overdrive specifications.

Variable-voltage control + **Strobe time control**

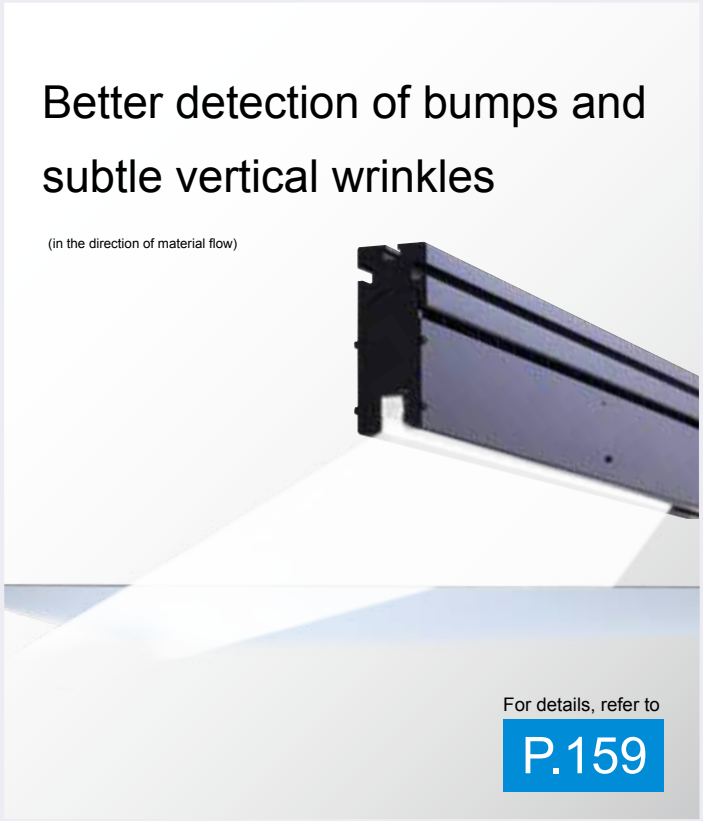
Output voltage (24 to 48 V)
512 levels
Fine-tuned light control

Strobe time:
1 to 1,000 µs
Lighting delay: **0 to 1,000**µs
Adjustable in steps of 1 µs.

- **Ethernet communications**
  (Parallel port also available.)
- **2 channels**
- **Continuous lighting under PWM control**

For details, refer to
P.201

Oblique Angled Lighting Line Lights LNDG series



- Better detection of bumps and subtle vertical wrinkles in plain sheets that disperse light

LED color	White
Emitting surface size	Width: 10 mm Length: 300 to 3,000 mm (in units of 100 mm)

Inspections for vertical wrinkles in paper labels

Inspecting non-woven fabric for defects

Analog Control Units (constant-current) PSCC(A) series

New Functions

- **Adjust light intensity to 1,000 levels.**
- **Adjust the light intensity separately for each Light Unit circuit.**

(For Ethernet and EIA-485 communication)

Capacity	300 or 600 W
External control	Ethernet, EIA-485, and parallel communication
Applicable Light Units	LNDG series, LNIS-FN series, LNSP-FN series, and LNSP-UV-FN series

The PSCC series have been upgraded. More functions have been provided for use with a wide range of applications.

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LED Lights

Direct Lighting

* LED color: ● Red, ○ white, ● blue, ● green, ● UV, ● IR

* The type and model numbers for each LED Light do not include special orders. Products of some types do not support the listed properties or functions.

LED Lights

Convergent Lighting

Ring Lights (waterproof type) P.25

Waterproof Ring Light that ensures brightness with a convergent lens

HLDR-IP series

For fault inspection and visual inspection

- Applications: Fault inspection for metal parts, visual inspection for rubber parts, and adhesive application inspection (UV), etc.
- 3 models
- LED colors: ● ○ ●

Diffused Lighting

Ring Lights P.29

Achieves a uniform region with a high degree of freedom by using a unique illuminating mechanism

HPR2 series

For inspection for damage or stains, visual inspection, and color determining inspection

- Applications: High angle uniform illumination and inspection via feature extraction on low-angle, etc.
- 28 models
- LED colors: ● ○ ● (Full color: ● ● ●)

Ring Lights P.33

Diffused illumination from a flat emitting surface

LFR series

For character recognition, text inspection, and color determining inspection

- Applications: Inspection for parts mounted on circuit boards and surface inspection for metal parts, etc.
- 23 models
- LED colors: ● ○ ● ●

Ring Lights P.35

Provides diffused light from an angled emitting surface

LKR series

For character recognition and inspection for stains or dents

- Applications: Soldering inspection, mixed models inspection in color determination, and inspection for stains on a glossy surface, etc.
- 12 models
- LED colors: ● ○ ● ●

Low-angle Ring Lights P.37

Provides diffused light at a low angle from an angled emitting surface

FPR series

For edge extraction, engraving inspection, and character recognition

- Applications: Edge extraction of metal parts and character recognition on electronic parts, etc.
- 12 models
- LED colors: ● ○ ● ●

LED Lights

Diffused Lighting

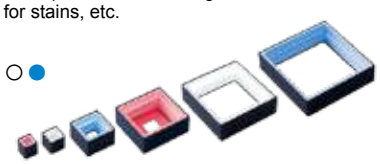
Low-angle Square Lights P.39

Provides diffused light at a low angle from four directions

FPQ2 series

For visual inspection, character recognition, and inspection for fragments or stains

- Applications: Visual inspection for electronic parts, character recognition, pin and lead bending, and inspection for stains, etc.
- 18 models
- LED colors: ● ○ ●



Direct Lighting

Bar Lights P.43

Provides direct light from an emitting part equipped with LEDs in straight lines

LDL2 series

For damage and visual inspection, and text reading

- Applications: Damage inspection for metal with hairline finishing, and foreign material and detection inspection, etc.
- 61 models
- LED colors: ● ○ ● ● ●

Bar Lights P.55

Bar Light with built-in Controller, perfect even for large workpieces

LDLB series <Lineup with waterproof types>

For inspection for mixed different models, visual inspection

- Applications: Light source for robotic picking, mixed models inspection, and visual inspection for large workpieces, etc.
- 4 models
- LED colors: ● ○

Bar Lights P.59

Provides direct light perfect for large workpieces

HLDL2 series

For inspection for mixed different models, visual inspection and dimension measuring

- Applications: Light source for robotic picking, visual inspection for large workpieces, and mixed models inspection, etc.
- 48 models
- LED colors: ● ○ ●

Diffused Lighting

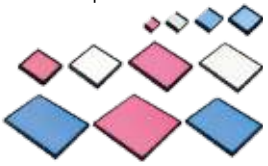
Flat Lights P.63

Diffused illumination from a flat emitting surface

TH series

For dimension measuring, visual inspection, and foreign material inspection

- Applications: Liquid surface inspection, pinhole inspection, visual inspection, and burr inspection for metal parts, etc.
- 33 models
- LED colors: ● ○ ●



* LED color: ● Red, ○ white, ● blue, ● green, ● UV, ● IR

* The type and model numbers for each LED Light do not include special orders. Products of some types do not support the listed properties or functions.

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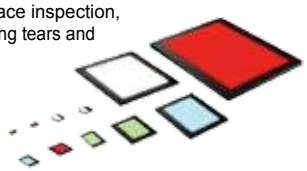
LED Lights

Diffused Lighting

Flat Lights
Diffused illumination from a flat emitting surface
P.67

LFL series
For dimension measuring, visual inspection, and foreign material inspection
- Applications: Liquid surface inspection, visual inspection, packaging tears and stain inspection, etc.
- 43 models
- LED colors: ● ○ ● ●



Dome Lights
Provides diffused light evenly through the dome-shaped reflective panel
P.71

HPD2 series
For visual inspection, color determination inspection, and inspection for stains
- Applications: Visual inspection for glossy surfaces, curved surfaces or uneven surfaces, text inspection, color determination inspection, engraving inspection, inspection for damage or stains, etc.
- 30 models
- LED colors: ● ○ ● ● (Full color: ● ● ●)

Dome Lights
Provides diffused light from a cone-shaped emitting surface
P.75

LDM2 series
For visual inspection, color determination inspection, and text inspection
- Applications: Visual inspection for glossy surfaces, curved surfaces or uneven surfaces, text inspection, color determination inspection, soldering inspection, etc.
- 8 models
- LED colors: ● ○ ● ●

Dome Lights
Provides diffused light evenly using a mechanism that combines a diffused lighting and a coaxial lighting
P.77

LAV series
For character recognition, text inspection, and dimension measuring
- Applications: Inspection for faulty plating, inspection of a sealed target, and inspection for foreign material attached to a glossy surface
- 4 models
- LED colors: ● ○ ● ●

Dome Lights
Mechanism that combines a diffused lighting, coaxial lighting, and low-angle lighting
P.78

PDM series
For character recognition, text inspection, and dimension measuring
- Applications: Inspection for faulty plating, inspection of a sealed target, and inspection for foreign material attached to a glossy surface
- 4 models
- LED colors: ● ○ ● ●

LED Lights

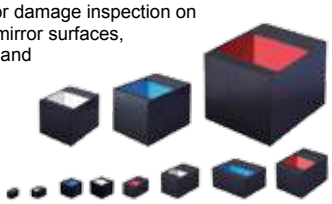
Diffused Lighting

Flat-Dome Lights
Uses original lighting technology to recreate the effect of a Coaxial and Dome Light
P.79

LFX2 series
For visual inspection, text inspection, mixed foreign materials inspection, and character recognition
- Applications: Visual inspection for glossy surfaces, curved surfaces or uneven surfaces, text inspection, mixed foreign materials inspection for food and medicine, etc.
- 15 models
- LED colors: ● ○ ●

Coaxial Lights
Provides diffused light evenly from the same axis as the camera
P.83

LFV3 series
For faults, damage or engraving inspection, and dimension measuring
- Applications: Faults or damage inspection on glossy surfaces and mirror surfaces, engraving inspection and dent inspection, etc.
- 33 models
- LED colors: ● ○ ●



Collimated Lighting

Coaxial Lights
Provides diffused light with high parallelism using original lighting technology
P.89

MSU series
For damage inspection, character recognition, inspection for dents or stain
- Applications: Inspection for fine damage on glossy surfaces, etc.
- 13 models
- LED colors: ● ○ ● ●

Coaxial Lights
Provides diffused light with high parallelism using original lighting technology
P.91

MFU series
For visual inspection and dimension measuring
- Applications: Detailed visual inspection and dimension measuring, etc.
- 2 models
- LED color: ●

Ultraviolet Lighting

Ultraviolet Lights
UV Lights that use high output UV-LEDs
P.93

UV2 series
For fluorescent observation
- Applications: Inspection for detecting seal material through fluorescent excitation, etc.
- 9 models
- LED color: ●

* LED color: ● Red, ○ white, ● blue, ● green, ● UV, ● IR

* The type and model numbers for each LED Light do not include special orders. Products of some types do not support the listed properties or functions.

LED Lights

Ultraviolet Lighting

Ultraviolet Lights
Varied Light Unit lineup using original UV-LEDs
P.97

UV series
For fluorescent observation
- Applications: Reading invisible codes, etc.
- 31 models
- LED color: ●

Ultraviolet Lights
UV Line Lights that use high-output UV-LEDs
P.99

LNSP-UV-FN series
For fluorescent observation
- Applications: Inspection for detecting seal material through fluorescent excitation, etc.
- 6 models
- LED color: ●

Infrared Lighting

Infrared Lights
Varied Light Unit lineup using IR-LEDs
P.103

IR2 series
For visual inspection and mixed foreign materials inspection
- Applications: Inspection of targets through liquid, etc.
- 36 models
- LED color: ●

Spot Lighting, Etc.

Spot Lights
Provides high output spot lighting using an original optical design
P.109

HLV2 series
As a light source for a telecentric lens
- Applications: Light source for dimension measuring and light source for spot lights, etc.
- 20 models
- LED colors: ● ○ ● ●

Spot Lights
Provides spot lighting using original converging technology
P.113

LV series
As a light source for a telecentric lens
- Applications: Light source for dimension measuring and light source for spot lights, etc.
- 4 models
- LED colors: ● ○ ● ●

Spot Lights
Provides spot lighting from an emitting surface of Φ33 mm
P.114

LSP series
For character recognition, visual inspection, and position inspection
- Applications: Light source for spot lights, etc.
- 1 model
- LED color: ●

LED Lights

Spot Lighting, Etc.

Micro Fiber Heads
LED Fiber Light system that uses original converging technology (Straight)
P.115

HFS series
For visual inspection, character recognition, and dimension measuring
- Applications: Alignment mark imaging, etc.
- 1 model
- LED color: Depends on the light source color

Micro Fiber Heads
LED Fiber Light system that uses original converging technology (Ring type)
P.116

HFR series
For visual inspection, character recognition, and dimension measuring
- Applications: Alignment mark imaging, etc.
- 3 models
- LED color: Depends on the light source color

Micro Fiber Head Dedicated Light Sources
Provides high output spot lighting using an original optical design
P.117

HLV2-22-NR-3W series
Allows for easy installation and removal
- Usage: Dedicated Light Source for the Micro Fiber Head
- 4 models
- LED colors: ● ○ ● ●

Micro Fiber Head Dedicated Light Sources
Provides high-output spot lighting using an original optical design and converging technology
P.118

HLV2-3M-RGB-3W
Can perform stepless independent intensity control for red, blue, and green light sources
- Usage: Dedicated Light Source for the Micro Fiber Head
- 1 model
- LED color: Depends on the light source color

LED Light Sources
Provides light output that exceeds that of a 250 W metal halide light source
P.119

PFBR series
LED light source that can replace a 250 W metal halide light source
- Applications: Used connected to various light guides
- 1 model
- LED color: ○

* LED color: ● Red, ○ white, ● blue, ● green, ● UV, ● IR

* The type and model numbers for each LED Light do not include special orders. Products of some types do not support the listed properties or functions.

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LED Lights

Spot Lighting, Etc.

LED Light Sources
Provides light output that exceeds that of a 100 W halogen light source
P.121

PFB2 series
LED light source that can replace a 100 W halogen light source
- Applications: Used connected to various light guides
- 64 models
- LED color: ○

Convergent Lighting

Line Lights
Uses original converging technology to achieve illumination with reduced diffusion
P.127

LNSP series
For visual inspection, scratch inspection, and alignment inspection
- 10 models
- Emitting surface: Up to 1,000 mm in 100 mm units.
- LED color: ○

LNSP Dedicated Coaxial Unit
Used as a Coaxial Light installed to the LNSP series
P.131

CU-LNSP series
Dedicated Coaxial Unit that is designed for use with the LNSP series
- 5 models
- Emitting surface: Up to 500 mm in 100 mm units.

Line Lights
Uses original converging technology to achieve illumination with reduced diffusion
P.133

LNSP-FN series
For visual inspection, scratch inspection, and alignment inspection
- 15 models
- Emitting surface: Up to 1,500 mm in 100 mm units.
- LED color: ○

Line Lights
Uses original converging technology to achieve illumination with reduced diffusion
P.137

LN series
For visual inspection and fault inspection
- 8 models
- Emitting surface: 60 mm, 200 mm
- LED colors: ● ○ ● ●

LED Lights

Convergent Lighting

Line Lights
Uses original converging technology to achieve illumination with reduced diffusion
P.138

LN-HK series
For visual inspection and fault inspection
- 2 models
- Emitting surface: 60 mm, 200 mm
- LED colors: ○

Diffused Lighting

Line Lights
Provides diffused light from an emitting surface equipped with LEDs in a straight line
P.139

LNSD series
For fish eye, damage, or dent inspection, foreign material inspection, and stain inspection
- 180 models
- Emitting surface: Up to 3,000 mm in 100 mm units.
- LED colors: ● ○ ●

Line Lights
Provides diffused light from an emitting surface equipped with LEDs in straight lines
P.143

LND2 series
For damage or dent inspection, foreign material inspection, and dimension measuring
- 8 models
- Emitting surface: Up to 1,203 mm in 100 mm units.
- LED colors: ● ○

Line Lights
Provides diffused light from an emitting surface equipped with LEDs in a straight line
P.147

HLND series
For foreign material inspection and stain inspection
- 108 models
- Emitting surface: Up to 2,700 mm in 100 mm units.
- LED colors: ● ○

Line Lights
Provides diffused light evenly using an original optical design
P.153

LT series
For fish eye inspection and scratch inspection
- 18 models
- Emitting surface: Up to 1,800 mm in 100 mm units.
- LED color: ○

* LED color: ● Red, ○ white, ● blue, ● green, ● UV, ● IR

* The type and model numbers for each LED Light do not include special orders. Products of some types do not support the listed properties or functions.

LED Lights

Diffused Lighting

Line Coaxial Lights
Provides diffused light from the same axis as the camera
P.157

LNV series
For fault inspection and stain inspection
- 4 models
- Emitting surface: 300 mm
- LED colors: ● ○ ● ●

Oblique Angled Lighting

Line Lights (Oblique angled light)
Achieves angled illumination using an original optical design
P.159

LNDG series
Vertical wrinkles or striations inspection, folding and bumps inspection, and moving-direction scratch inspection
New
- 28 models
- Emitting surface: Up to 3,000 mm in 100 mm units.
- LED color: ○

Line Lights (bi-directional angled light)
Achieves bi-directional angled illumination using an original optical design
P.163

LNIS series
Streak inspection, scratch inspection, and moving-direction scratch inspection
- 10 models
- Emitting surface: Up to 1,000 mm in 100 mm units.
- LED color: ○

Line Lights (Oblique angled light)
Best for finding moving-direction scratches
P.167

LNIS-FN series
Streak inspection, scratch inspection, and moving-direction scratch inspection
- 15 models
- Emitting surface: Up to 1,500 mm in 100 mm units.
- LED color: ○

Control Units/Controllers

Control Units/Controllers

Digital Control Units
PD3 series » P.189

Digital Control Units
PD2 series » P.195

Strobe Unit
STU-3000 » P.198

Analog Control Units
PSB series » P.199

New

Strobe Overdrive Control Unit
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Strobe Overdrive Control Unit
PTU2 series » P.205

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Building Block Types
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Spot Light Dedicated
PJ series » P.215

Spot Light Dedicated
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Renewed

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Analog Control Units
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PSB3-30024 » P.221

Lenses

Lenses

Telecentric Lenses
SE-65/SE-110 series » P.181

Macro Lenses
SE-16/SE-18 series » P.183

Options

Options

Optional Parts » P.223 to P.229

Extension Cables » P.230

* LED color: ● Red, ○ white, ● blue, ● green, ● UV, ● IR

* The type and model numbers for each LED Light do not include special orders. Products of some types do not support the listed properties or functions.

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Ring Lights
LDR2 series

Refer to our website for product details.
CCS LDR2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides direct light from an angled emitting part


LDR2-120SW2


LDR2-90-30RD2


LDR2-90BL2


LDR2-70RD2


LDR2-50GR2


LDR2-42SW2

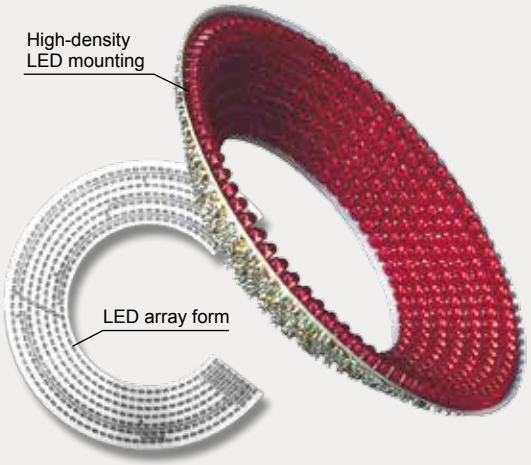

LDR2-32RD2

Applications	Character recognition, visual inspection, inspections for damage or stains, reading 2-dimensional code, and inspecting parts on boards, etc.

Standard Ring Lights

Uses a flexible circuit board to achieve the functions needed for a Ring Light. It can illuminate workpieces at an angle and can illuminate the whole workpiece. This alleviates the influence of slight position or inclination deviations in the workpiece and enables stable imaging.

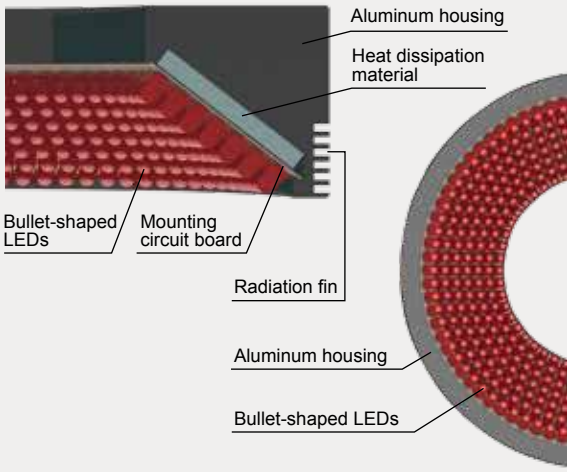
Flexible circuit board



Succeeds in greatly reducing LED's heat

Heat dissipation material is used between the board and the aluminum housing, absorbing heat produced by the LEDs. This succeeds in greatly reducing the creation of heat, which causes the LEDs to deteriorate.

Cross-section image of the LDR2-120

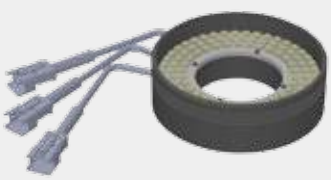


Custom orders

Please contact your CCS sales representative.

E.g.: Different color

Wavelength/ Color — Creating a full color (RGB) Light Unit



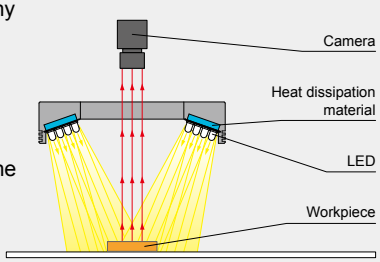
Customizable items

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

Example configuration

Bend the flexible circuit board to any shape necessary and mount LEDs with high density. Illuminates so that direct light is concentrated in the center.

LDR2-90



We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

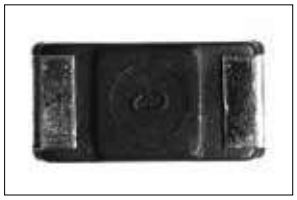
Imaging example : Electrode imaging of electronic parts

Description	Visual inspection
Workpiece	Electronic parts
Before the proposal	LED Bar Light
After the proposal	LDR2-32RD2
Result	Improved uniformity

■ Workpiece image

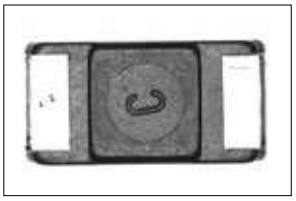
Electronic part

■ LED Bar Light



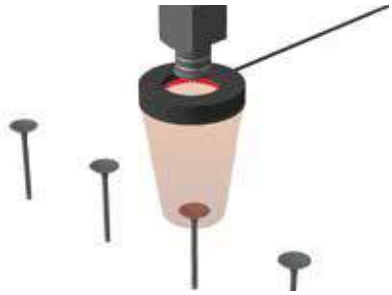
It's difficult to make an image of the electrode part using a Bar Light.

■ LDR2-32RD2



A Ring Light can illuminate the electrode part evenly and make an image.

Imaging example : Imaging text on an intake valve



Description	Character recognition
Workpiece	Intake valve (automobile part)
Before the proposal	LED Ring Light
After the proposal	LDR2-50RD2
Result	Emphasized characters

■ Workpiece image

Intake valve

■ LED Ring Light

It's difficult to clearly recognize the text due to the inner indentation.

■ LDR2-50RD2

Allows for image that makes the character edges stand out.

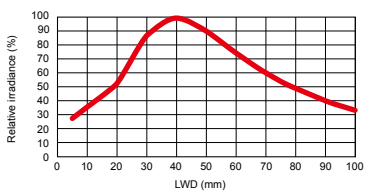
Data: Relative irradiance graph/Uniformity (Representative example)

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

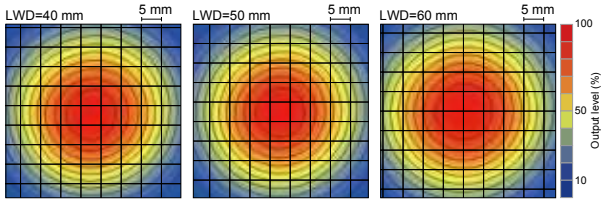
LDR2-50RD2

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



You can inquire using our website.

Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries

Inquire on our website here.
http://www.ccs-grp.com/contact/

LDR2 series

Refer to our website for product details.
CCS LDR2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

* End of the model name: -WD: Wide type

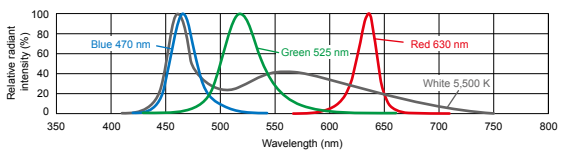
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LDR2-32RD2	Red	24 V / 1.6 W	630 nm	Diffusion plate, Polarizing plate, Adapter, Lens attachment ring	PD3, CC-ST-1024, PSB, POD*1	30 g
LDR2-32SW2	White	24 V / 1.9 W	5,500 K			
LDR2-32BL2	Blue		470 nm			
LDR2-32GR2	Green		525 nm			
LDR2-42RD2	Red	24 V / 2.1 W	630 nm	Diffusion plate, Polarizing plate, Adapter		50 g
LDR2-42SW2	White	24 V / 2.7 W	5,500 K			
LDR2-42BL2	Blue		470 nm			
LDR2-42GR2	Green		525 nm			
LDR2-50RD2	Red	24 V / 3.1 W	630 nm	Diffusion plate, Polarizing plate, Adapter, Lens attachment ring		50 g
LDR2-50RD2-WD						
LDR2-50SW2	White	24 V / 3.8 W	5,500 K			
LDR2-50BL2	Blue		470 nm			
LDR2-50GR2	Green		525 nm			
LDR2-70RD2	Red	24 V / 6.1 W	630 nm	Diffusion plate, Polarizing plate		110 g
LDR2-70RD2-WD						
LDR2-70SW2	White	24 V / 7.6 W	5,500 K			120 g
LDR2-70BL2	Blue		470 nm			
LDR2-70GR2	Green		525 nm			
LDR2-90RD2	Red	24 V / 11 W	630 nm	Diffusion plate, Polarizing plate, Adapter	PD3, PSB, POD*1	170 g
LDR2-90RD2-WD						
LDR2-90SW2	White	24 V / 14 W	5,500 K			
LDR2-90BL2	Blue		470 nm			
LDR2-90GR2	Green		525 nm			
LDR2-90-30RD2	Red	24 V / 14 W	630 nm	–		220 g
LDR2-90-30SW2	White	24 V / 18 W	5,500 K			
LDR2-90-30BL2	Blue	24 V / 17 W	470 nm			
LDR2-90-30GR2	Green		525 nm			
LDR2-120RD2-WD	Red	24 V / 24 W	630 nm	Diffusion plate, Polarizing plate, Adapter	PD3, PSB, POD*1	510 g
LDR2-120SW2	White	24 V / 28 W	5,500 K			500 g
LDR2-120BL2	Blue	24 V / 26 W	470 nm			
LDR2-120GR2	Green		525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

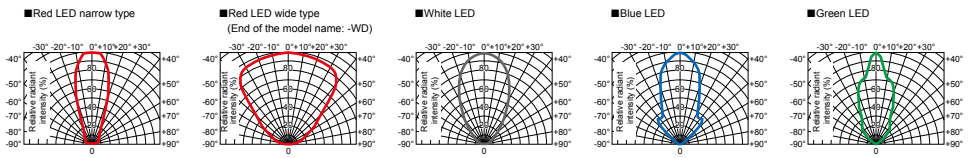
LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Directional characteristics



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Options

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

Diffusion plate

An adapter is required when installing a diffusion plate.

Model name	Applicable Light Unit (Common for all colors)
DF-LDR-32	LDR2-32
DF-LDR-42	LDR2-42
DF-LDR-50	LDR2-50
DF-LDR-70*	LDR2-70
DF-LDR-90	LDR2-90
DF-LDR-120-45	LDR2-120

* The DF-LDR-70 does not require an adapter. Directly affix it to the Light Unit.

▶ P.224

Use with a polarizing filter to remove the light's surface reflection.

Polarizing plate

An adapter is required when installing a polarizing plate.

Model name	Applicable Light Unit (Common for all colors)
PL-LDR-32	LDR2-32
PL-LDR-42	LDR2-42
PL-LDR-50	LDR2-50
PL-LDR2-70*	LDR2-70
PL-LDR-90	LDR2-90
PL-LDR-120-40	LDR2-120

* The PL-LDR2-70 includes an adapter for attachment.

▶ P.225

Use when installing a diffusion plate or polarizing plate to the Light Unit.

Adapter

Model name	Applicable Light Unit (Common for all colors)
AD-LDR-32	LDR2-32
AD-LDR-42	LDR2-42
AD-LDR-50	LDR2-50
AD-LDR-90	LDR2-90
AD-LDR-120	LDR2-120

▶ P.229

Can directly install the Light Unit to the screw section for the lens filter. Perfect for environments with narrow installation spots.

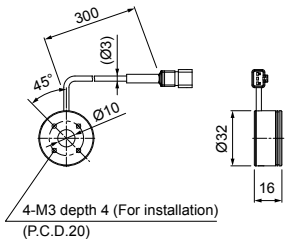
Lens attachment ring

Model name	Note	Applicable Light Unit (Common for all colors)
MR-LDR-32-M25	M25.5 P0.5	LDR2-32
MR-LDR-32-M27	M27.0 P0.5	
MR-LDR-32-M30	M30.5 P0.5	
MR-LDR-50-M25	M25.5 P0.5	LDR2-50
MR-LDR-50-M27	M27.0 P0.5	
MR-LDR-50-M30	M30.5 P0.5	

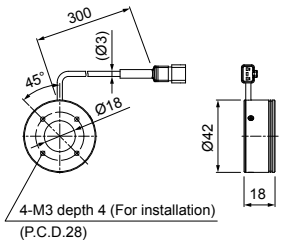
▶ P.229

Dimensions (mm)

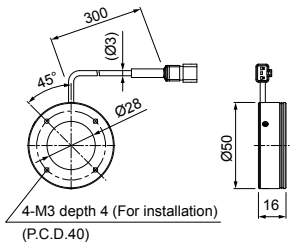
LDR2-32RD2/SW2/BL2/GR2



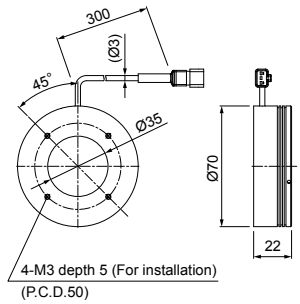
LDR2-42RD2/SW2/BL2/GR2



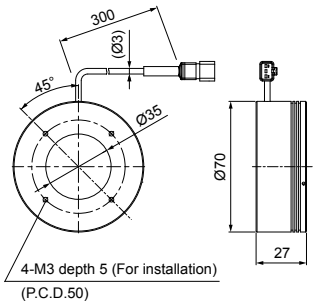
LDR2-50RD2/RD2-WD/SW2/BL2/GR2



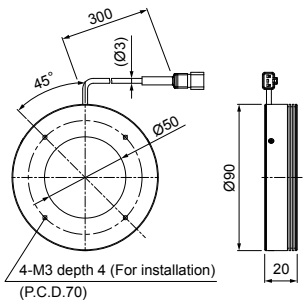
LDR2-70RD2/RD2-WD



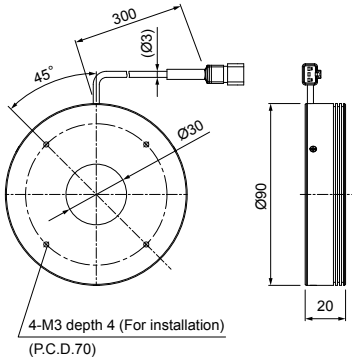
LDR2-70SW2/BL2/GR2



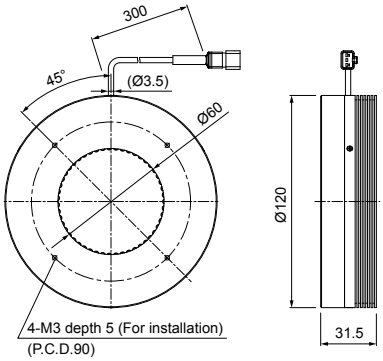
LDR2-90RD2/RD2-WD/SW2/BL2/GR2



LDR2-90-30RD2/SW2/BL2/GR2



LDR2-120RD2-WD/SW2/BL2/GR2



* Cable diameter of LDR2-90-30SW2/BL2/GR2 is Ø3.5.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Low-angle Ring Lights
LDR2-LA series

Refer to our website for product details.
CCS LDR2-LA ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

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


LDR2-208SW2-LA


LDR2-170BL2-LA


LDR2-132RD2-LA


LDR2-74GR2-LA


LDR2-100RD2-LA

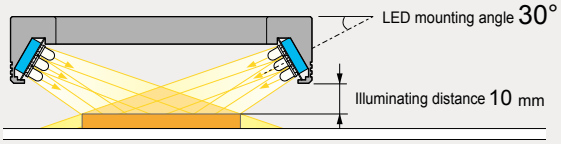

LDR2-48SW2-LA

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, and 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.

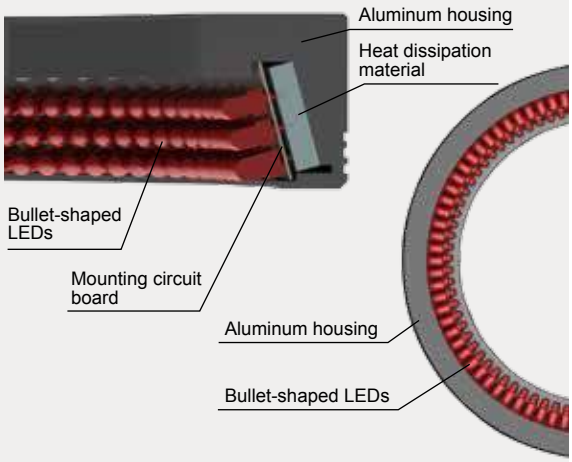
LDR2-100RD2-LA

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

External/internal diameter

Create a Light Unit with a large size

Customizable items

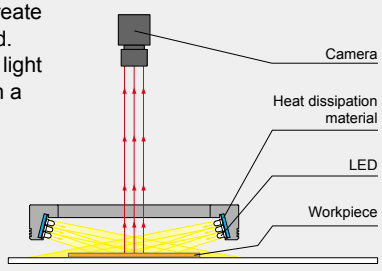
- External/internal diameter
- Wavelength/ Color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

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



We have various materials.

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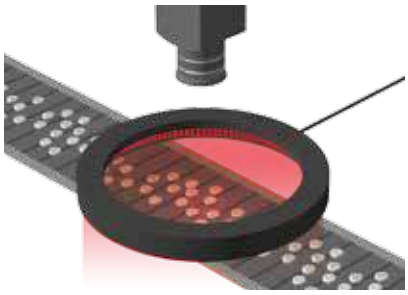
Download here.
http://www.ccs-grp.com/dl/

Imaging example : Text on tablets, exterior imaging



Description	Text, visual inspection
Workpiece	Tablet
Before the proposal	Interior lamp
After the proposal	LDR2-170RD2-LA
Result	Emphasizes text and edge of the exterior

Workpiece image

Tablet

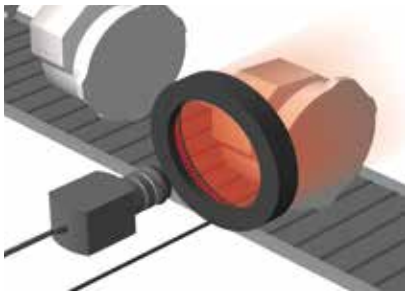
Interior lamp

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
Before the proposal	LED Dome Light
After the proposal	LDR2-132RD2-LA
Result	Extracts only the engraved text

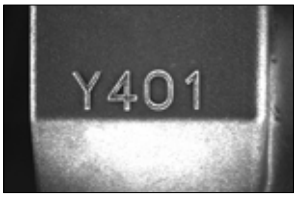
Workpiece image

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.

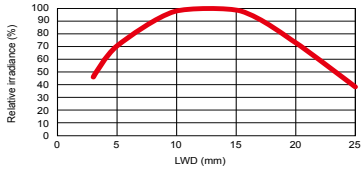
Data: Relative irradiance graph/Uniformity (Representative example)

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

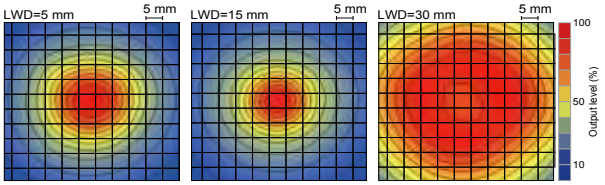
LDR2-74RD2-LA

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



LDR2-LA series

Refer to our website for product details.

CCS LDR2-LA ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup

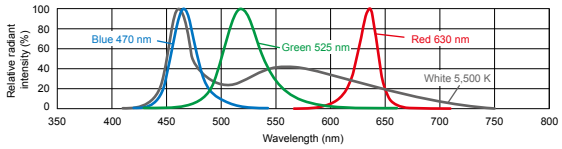
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LDR2-48RD2-LA	Red	24 V / 2.1 W	630 nm	Diffusion plate	PD3 CC-ST-1024 PSB POD*1	50 g
LDR2-48SW2-LA	White	24 V / 3.1 W	5,500 K			
LDR2-48BL2-LA	Blue		470 nm			
LDR2-48GR2-LA	Green		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		PD3 PSB POD*1	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.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

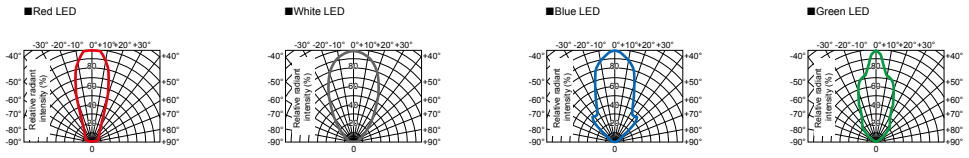
LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Directional characteristics



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
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

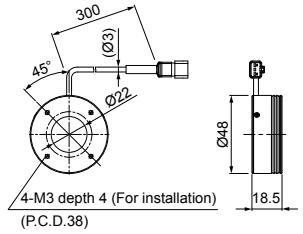
▶ P.224

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

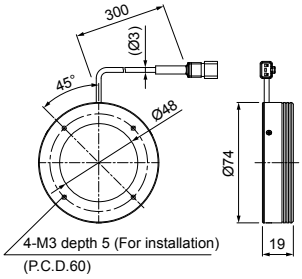
Download here. http://www.ccs-grp.com/dl/

Dimensions (mm)

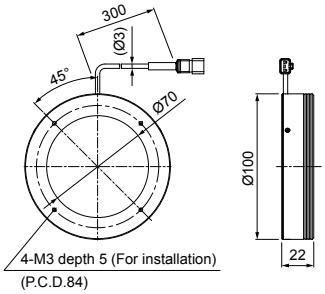
LDR2-48RD2-LA/SW2-LA/BL2-LA/GR2-LA



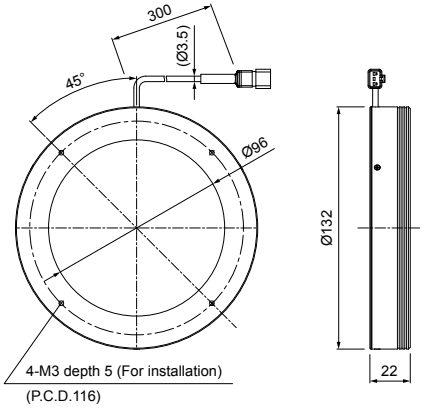
LDR2-74RD2-LA/SW2-LA/BL2-LA/GR2-LA



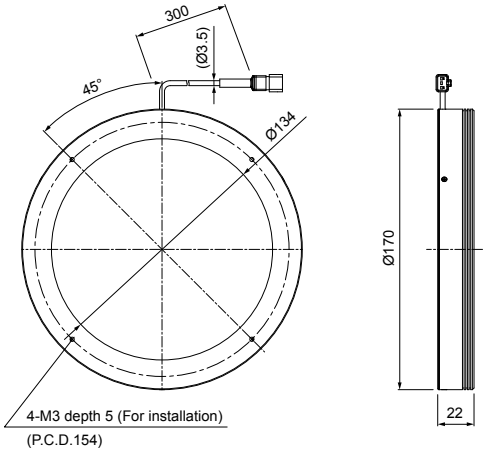
LDR2-100RD2-LA/SW2-LA/BL2-LA/GR2-LA



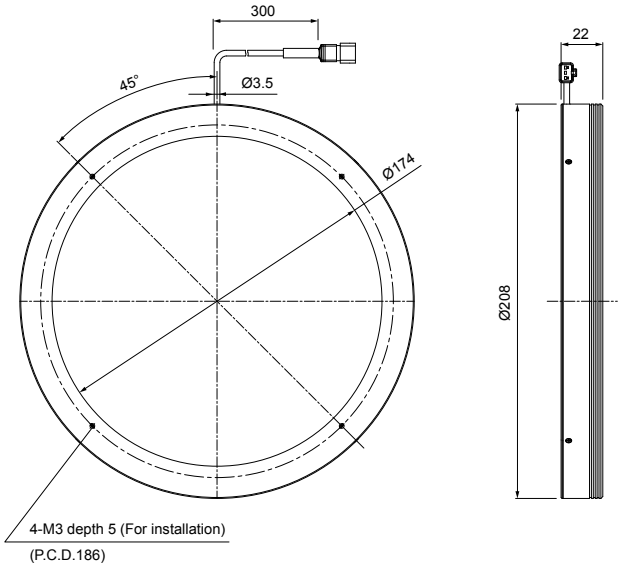
LDR2-132RD2-LA/SW2-LA/BL2-LA/GR2-LA



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.123 for details.

Low-angle Ring Lights
LDR-LA1 series

Refer to our website for product details.
CCS LDR-LA1 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides direct light at a low angle from an emitting part directed horizontally


LDR-206SW2-LA1


LDR-176BL2-LA1


LDR-146RD2-LA1


LDR-96GR2-LA1

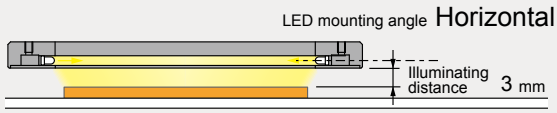

LDR-75RD2-LA1

Applications Edge detection, inspection for engraving/damage/stains on metal surfaces, inspection for foreign material on wafers, inspection of bonding on shrink film, and engraved character recognition for rubber, etc.

Illuminating closest to the workpiece

Allows for illuminating closer to the workpiece than the LDR2-LA series. Perfect for imaging of minute unevenness, damage, or engraved characters.

Imaging example for the LDR-206SW2-LA1: Exterior imaging of food containers



LDR2-208SW2-LA

The seal and engraved text affect the image, and the shrink seal cannot be sufficiently detected.

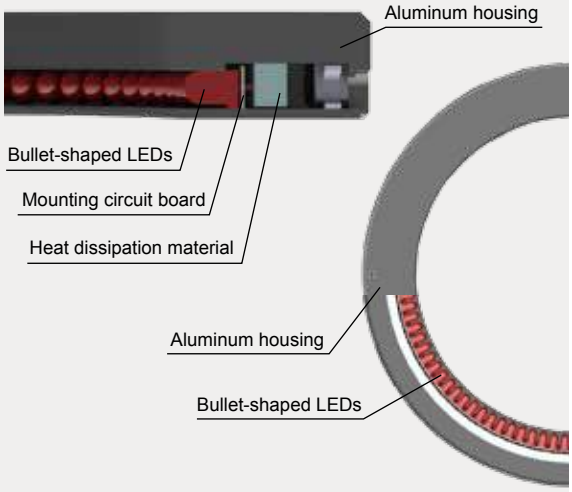
LDR-206SW2-LA1

Only the shrink seal clearly stands out.

LEDs mounted horizontally

Achieved a thin device that is 10 mm thick by mounting LEDs horizontally in one line. Helps save space because it can be installed near the workpiece.

Cross-section image of the LDR-146-LA1



Custom orders

Please contact your CCS sales representative.

E.g.: Changed the format to take measures against interference with the device

Format/ material

Created a Light Unit with a shape to match the purpose

Cut to match the purpose

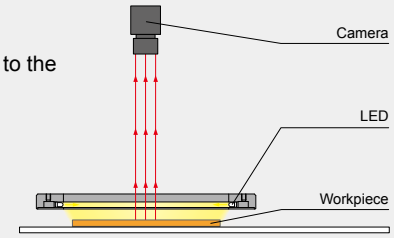
Customizable items

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

Example configuration

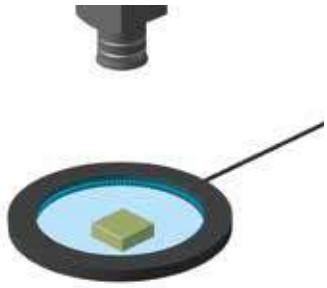
LEDs are arranged facing horizontally in a ring shape. It can be used extremely close to the workpiece.

LDR-146-LA1



We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Imaging example : Exterior imaging of a plastic case surface



Description	Visual inspection
Workpiece	Plastic case
Before the proposal	Interior lamp
After the proposal	LDR-146BL2-LA1
Result	Extracting the damage

■ Workpiece image

Plastic case

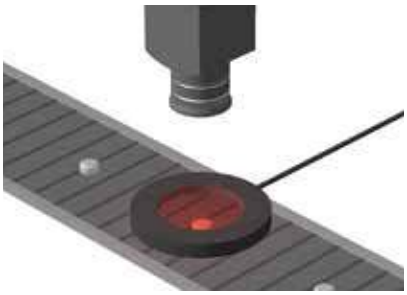
■ Interior lamp

The whole thing is evenly illuminated, making it difficult to detect the damage.

■ LDR-146BL2-LA1

It is possible to clearly get an image of the outside and damage on the surface.

Imaging example : Exterior imaging of button batteries



Description	Visual inspection
Workpiece	Button battery
Before the proposal	LED Ring Light
After the proposal	LDR-75RD2-LA1
Result	Extracting the damage

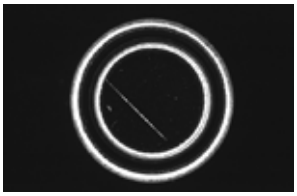
■ Workpiece image

Button battery

■ LED Ring Light

It is difficult to get an image of the button battery outside or damage on the surface.

■ LDR-75RD2-LA1



It is possible to clearly get an image of the outside and damage on the surface.

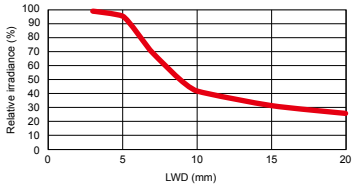
Data: Relative irradiance graph/Uniformity (Representative example)

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

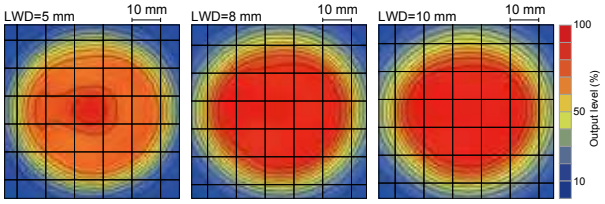
LDR-75RD2-LA1

Relative irradiance graph (LWD Characteristics)*2

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



Uniformity (Relative irradiance)



You can inquire using our website.

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Inquire on our website here.
http://www.ccs-grp.com/contact/

LDR-LA1 series

Refer to our website for product details.

CCS LDR-LA1 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup

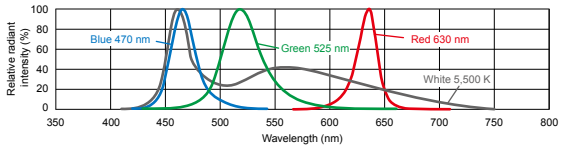
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LDR-75RD2-LA1	Red	24 V / 2.6 W	630 nm	–	PD3 CC-ST-1024 PSB POD*1	55 g
LDR-75SW2-LA1	White	24 V / 3.8 W	5,500 K			
LDR-75BL2-LA1	Blue		470 nm			
LDR-75GR2-LA1	Green		525 nm			
LDR-96RD2-LA1	Red	24 V / 3.1 W	630 nm			100 g
LDR-96SW2-LA1	White	24 V / 3.8 W	5,500 K			
LDR-96BL2-LA1	Blue		470 nm			
LDR-96GR2-LA1	Green		525 nm			
LDR-146RD2-LA1	Red	24 V / 4.6 W	630 nm			170 g
LDR-146SW2-LA1	White	24 V / 6.0 W	5,500 K			160 g
LDR-146BL2-LA1	Blue	24 V / 6.1 W	470 nm			
LDR-146GR2-LA1	Green		525 nm			
LDR-176RD2-LA1	Red	24 V / 6.1 W	630 nm			210 g
LDR-176SW2-LA1	White	24 V / 7.6 W	5,500 K			205 g
LDR-176BL2-LA1	Blue		470 nm			
LDR-176GR2-LA1	Green		525 nm			
LDR-206RD2-LA1	Red	24 V / 7.1 W	630 nm			250 g
LDR-206SW2-LA1	White	24 V / 9.1 W	5,500 K			220 g
LDR-206BL2-LA1	Blue		470 nm			
LDR-206GR2-LA1	Green		525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

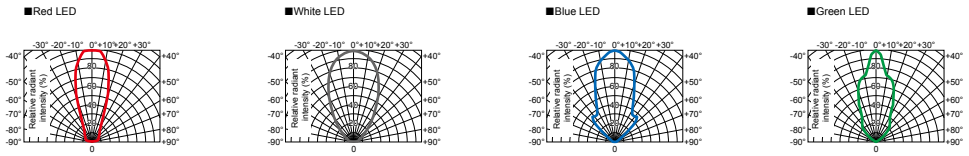
LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Directional characteristics



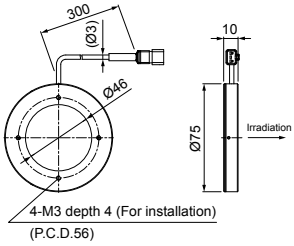
Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

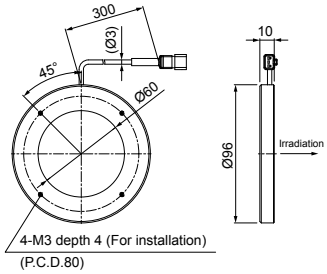
Download here. http://www.ccs-grp.com/dl/

Dimensions (mm)

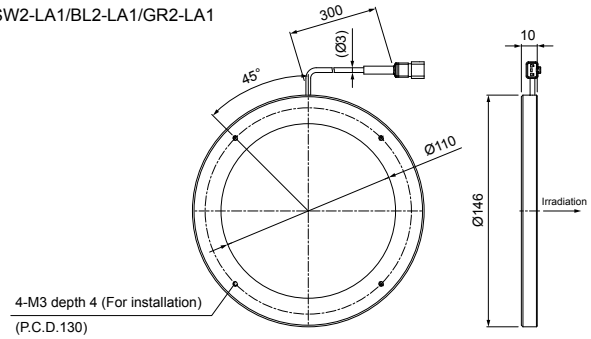
LDR-75RD2-LA1/SW2-LA1/BL2-LA1/GR2-LA1



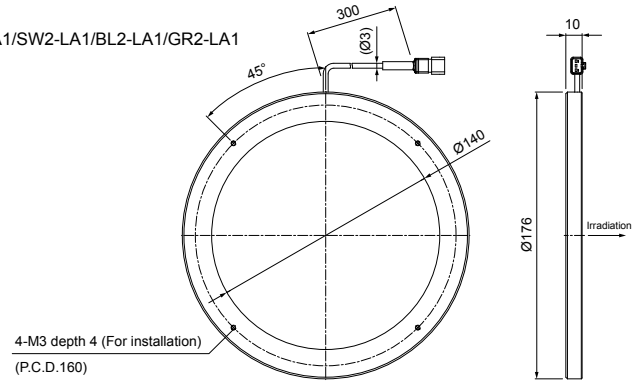
LDR-96RD2-LA1/SW2-LA1/BL2-LA1/GR2-LA1



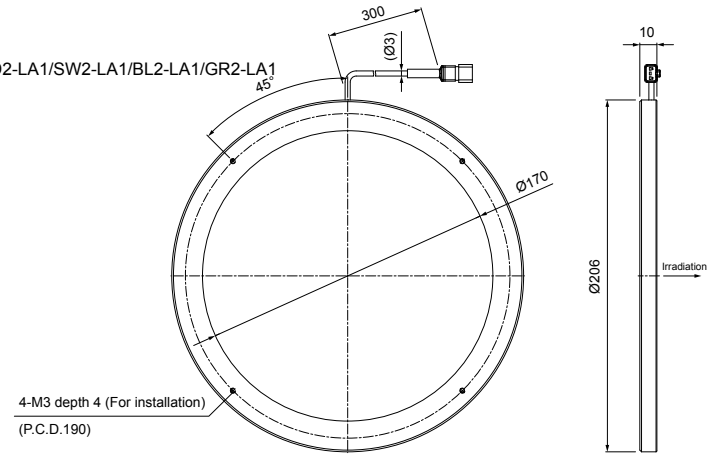
LDR-146RD2-LA1/SW2-LA1/BL2-LA1/GR2-LA1



LDR-176RD2-LA1/SW2-LA1/BL2-LA1/GR2-LA1



LDR-206RD2-LA1/SW2-LA1/BL2-LA1/GR2-LA1



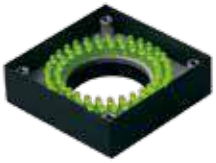
You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Ring Lights
SQR series

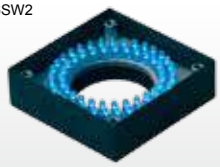
Refer to our website for product details.
CCS SQR ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

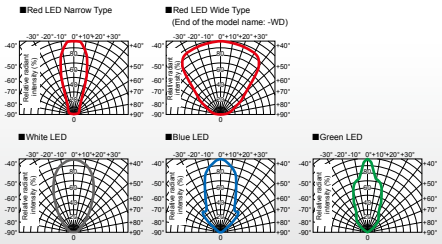
Provides direct light from the upper section


SQR-56SW2


SQR-56GR2


SQR-56RD2


SQR-56BL2



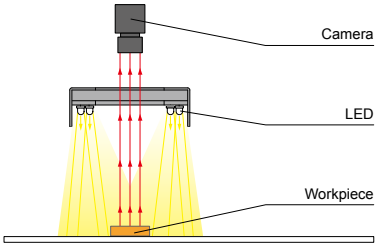
Applications Character recognition, visual inspections, inspections for damage or stains, reading 2-dimensional code, and inspecting parts on boards, etc.

Characteristics

Rings of bullet-shaped LEDs mounted on a square case.
LEDs are mounted on a flat circuit board to illuminate direct light on the workpiece from above.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

Example configuration (SQR-56)



Imaging example: Imaging of text on a label


Workpiece: Beverage bottle

■LED Ring Light


Illuminated light converges in the center, making stable inspection difficult.

■SQR-56SW2


The whole thing is evenly and brightly illuminated, making it possible to take an image of the label text.

Lineup

* End of the model name: -WD: Wide type

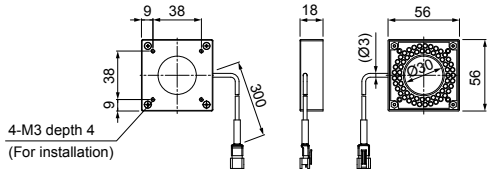
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
SQR-56RD2	Red	24 V / 3.1 W	630 nm	Diffusion plate, Polarizing plate	PD3, CC-ST-1024, PSB, POD*	75 g
SQR-56RD2-WD						
SQR-56SW2	White	24 V / 3.8 W	5,500 K			
SQR-56BL2	Blue		470 nm			
SQR-56GR2	Green		525 nm			

LED Properties: Light Spectrum ▶ P.242 | Options ▶ P.223 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

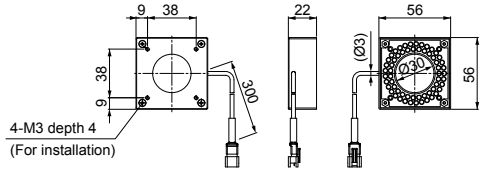
* For information on the combination of Light Units and POD-series Control Unit, please refer to our website. http://www.ccs-grp.com/lnk/qr/pod

Dimensions (mm)

SQR-56RD2/RD2-WD



SQR-56SW2/BL2/GR2



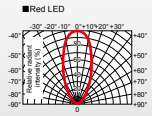
You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Low-angle Ring Lights
SQR-TP series

Refer to our website for product details.
CCS SQR-TP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

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



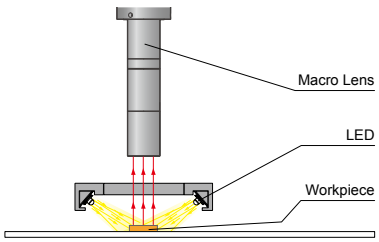
Applications Visual inspections for metal parts, inspection for damage/stains for electronic parts, inspection for damage to resin parts, inspection for damage to glass edges, and inspection for damage to stain finishing

Characteristics

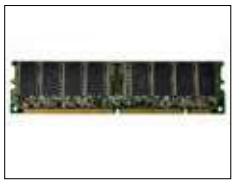
Rings of surface-mounted LEDs mounted on a square case.
Provides direct light at a low angle from an angled emitting part.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

Example configuration (SQR-TP-34RD)



Imaging example: Imaging of text on a circuit board



Workpiece: circuit board

■ Macro lens + LED Spot Light

It is difficult to recognize the surface status using coaxial illumination.

■ SQR-TP-34RD

Can make an image of the text on the circuit board, the text on the chip, and the soldering plating.

Lineup

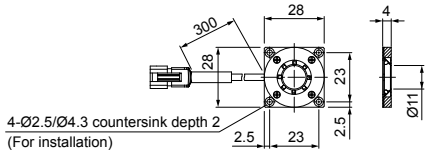
Model name	LED color	Power consumption	Peak wavelength	Options	Recommended Control Units	Weight
SQR-TP-28RD	Red	24 V / 0.5 W	638 nm	–	PD3 / CC-ST-1024	15 g
SQR-TP-34RD		24 V / 0.9 W			PSB / POD*	16 g

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

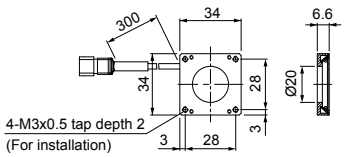
* For information on the combination of Light Units and POD-series Control Unit, please refer to our website. http://www.ccs-grp.com/lnk/qr/pod

Dimensions (mm)

SQR-TP-28RD



SQR-TP-34RD



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

You can inquire using our website.
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Ring Lights (waterproof type) HLDR-IP series

Refer to our website for product details.
CCS HLDR-IP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light converged by a lens


HLDR-IP67-100RD


HLDR-IP67-100SW

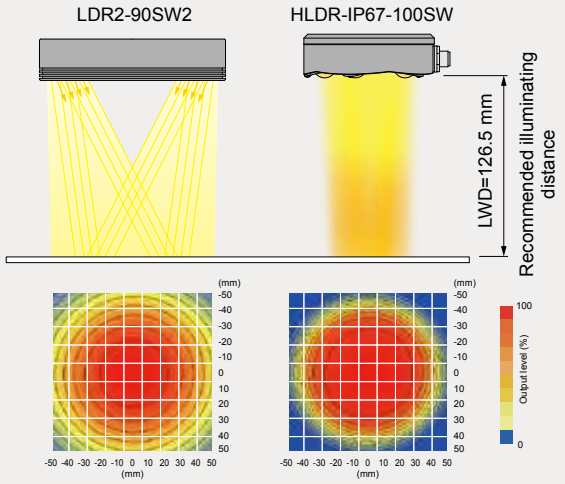

HLDR-IP67-100UV2-365

Applications Fault inspection for metal parts, visual inspection for rubber parts, visual inspection for resin parts, and adhesive application inspection for food containers (UV), etc.

Achieves convergent illumination

The HLDR-IP series features convergent Ring Lights that ensure brightness with a convergent lens.

Comparison of illumination between a Ring Light and the HLDR-IP series



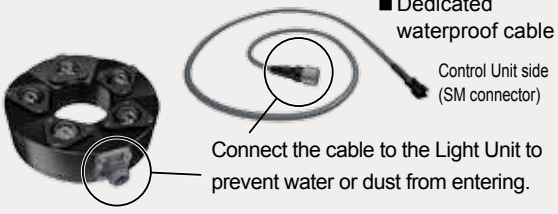
IP67 compliant

It has a waterproof and rustproof structure for use in harsh environments. Optimal for sites where manufacturing lines must be cleaned, such as for food and chemicals.

Waterproof Ring Light HLDR-IP series

- Convergent Ring Light
- Emitted color: Red, white, UV (365 nm)
- IP67 compliant
- Uses an M12 connector

Uses an M12 connector



Custom orders

Please contact your CCS sales representative.

E.g.: Changed the illuminating angle

Illuminating angle — Creating a Light Unit with a changed converging distance

Customizable items

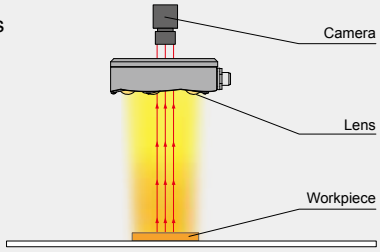
- External/internal diameter
- Wavelength/color
- Increase output
- Cable length
- Illuminating angle
- Format/material
- Connector format
- Installation/mounting

Etc.

Example configuration

Convergent waterproof Ring Light that ensures brightness with a convergent lens.

HLDR-IP67-100



We have various materials.
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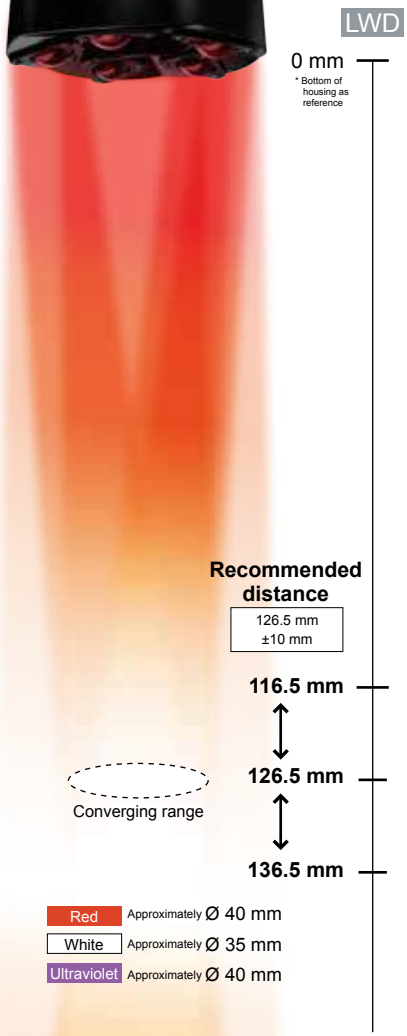
Download here. http://www.ccs-grp.com/dl/

Regarding recommended distance

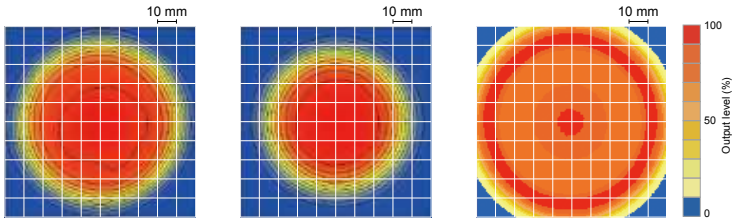
* The data included is for reference only. Actual values may vary.

Convergent illumination image



LWD=116.5 mm

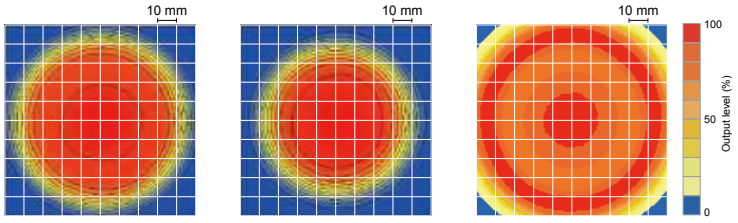
Illuminance Approximately **59,000** lx — Red
Illuminance Approximately **138,000** lx — White
Irradiance **20.4** mW/cm²— Ultraviolet



* The values for red and white are measured values. Results for individual products may vary.
* Values are simulated for UV. Actual values may vary.

LWD=126.5 mm

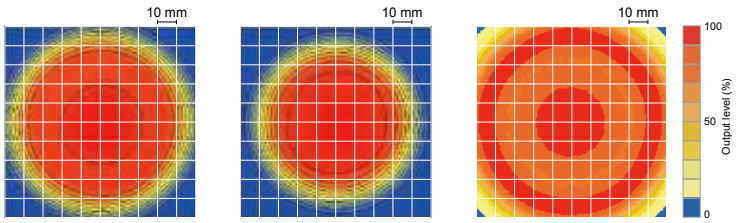
Illuminance Approximately **53,000** lx — Red
Illuminance Approximately **124,000** lx — White
Irradiance **18.6** mW/cm²— Ultraviolet



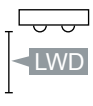
* The values for red and white are measured values. Results for individual products may vary.
* Values are simulated for UV. Actual values may vary.

LWD=136.5 mm

Illuminance Approximately **47,000** lx — Red
Illuminance Approximately **113,000** lx — White
Irradiance **16.8** mW/cm²— Ultraviolet



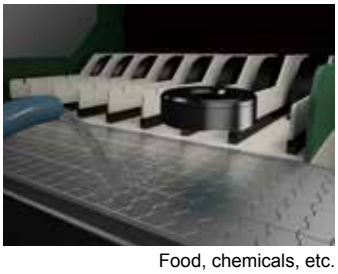
* The values for red and white are measured values. Results for individual products may vary.
* Values are simulated for UV. Actual values may vary.



* Converged near LWD=126.5 mm.
* If the recommended range (126.5 mm±10 mm) is exceeded, the uniformity may change and the imaging may be affected.
* LWD is the distance from the Light Unit to the workpiece.

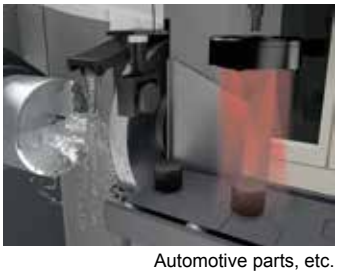
Safe to use when washing manufacturing lines

■ When washing manufacturing lines



Food, chemicals, etc.

■ For manufacturing lines that use water



Automotive parts, etc.

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Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here.
http://www.ccs-grp.com/contact/

HLDR-IP series

Refer to our website for product details.
CCS HLDR-IP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Imaging example : Fluorescent observation of adhesive on a plastic container

Description	Application inspection for adhesive
Workpiece	Plastic container
Before the proposal	LED visible light lighting
After the proposal	HLDR-IP67-100UV2-365
Result	Only detects the adhesive

■ Workpiece image

Plastic container

■ LED visible light lighting

It was difficult to detect the application of the adhesive using visible light lighting.

■ HLDR-IP67-100UV2-365

Only the adhesive causes fluorescent scattering, allowing for an image of the application status.

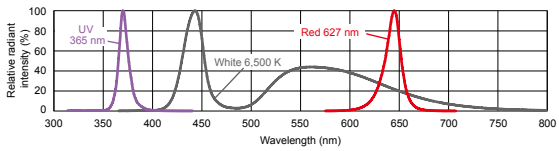
Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
HLDR-IP67-100RD	Red	24 V / 18 W	627 nm	–	PD3 PSB	420 g
HLDR-IP67-100SW	White		6,500 K			
HLDR-IP67-100UV2-365	Ultraviolet		365 nm	Ultraviolet cutting filter Ultraviolet transmission filter		

Control Unit Selection Guide ▶ P.185
List of Control Unit Specifications ▶ P.187

LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option).
For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Options

Blocks light with a wavelength of 420 nm or lower, transmits light with a longer wavelength.

Ultraviolet cutting filter
L42 series

Model name	Size
L42-25	M25.5 P0.5
L42-27	M27.0 P0.5
L42-30	M30.5 P0.5
L42-40	M40.5 P0.5
L42-46	M46.0 P0.75

▶ P.223

Transmits ultraviolet light, absorbs visible light.

Ultraviolet transmission filter
U340 series

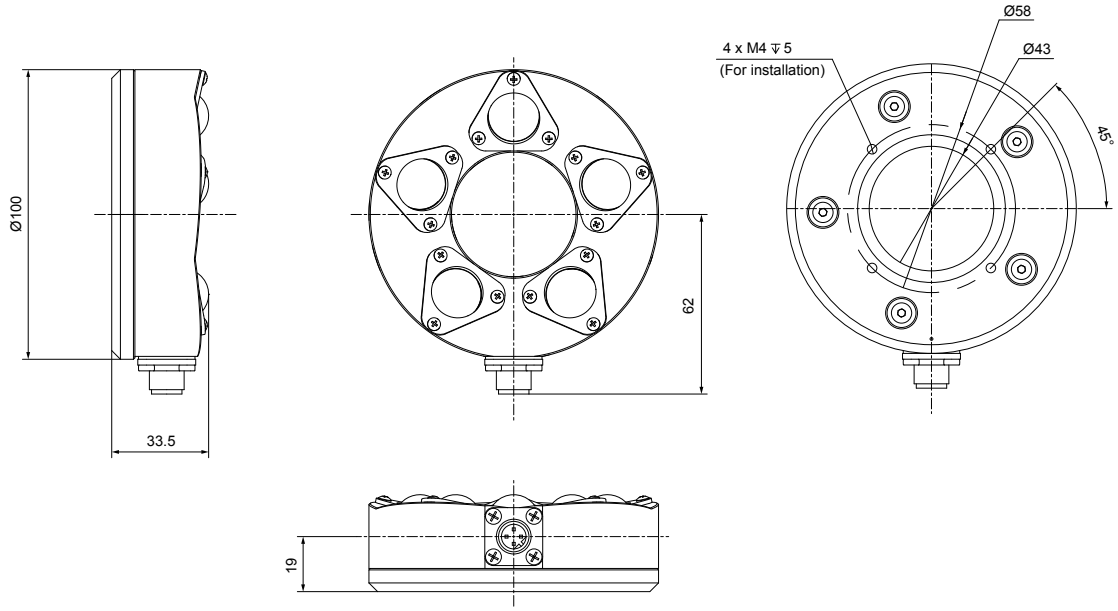
Model name	Size
U340-25	M25.5 P0.5
U340-27	M27.0 P0.5
U340-30	M30.5 P0.5
U340-40	M40.5 P0.5
U340-46	M46.0 P0.75

▶ P.223

We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

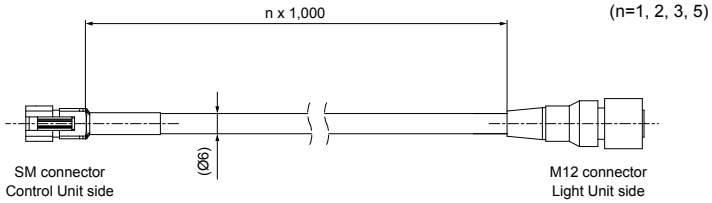
Dimensions (mm)

HLDR-IP67-100RD/SW/UV2-365



Dedicated cable

Model name	Cable length	Weight
FCB-1-M12	1 m	70 g
FCB-2-M12	2 m	125 g
FCB-3-M12	3 m	180 g
FCB-5-M12	5 m	305 g



* SM connectors are not waterproof.

* Cable permitted bending radius: 40 mm
* The above cable permitted bending radius is a reference value. Actual value may vary.

Regarding case materials

	LED Light (Common for all colors)	Dedicated cable
Case material	Body: aluminum alloy (black anodized) Screws: SUS Washers: SUS, elastomer (TPE) Connectors: PA resin Lens: silicone	Light Unit side connector: soft PBT Cable: PVC Control Unit side connector: nylon

* Indicates the details for materials only regarding the external parts.

Note

"IP67" indicates the level of protection against foreign material entering electrical instruments

The 1st numeral "6" indicates the following level of protection:
- No dust inside the instrument. (dustproof)

The 2nd numeral "7" indicates the following level of protection:
- No damage when submerged in water at the rated pressure for the rated time. (watertight type)
- Can be submerged in water to a depth of 1 m (for instruments with a height of less than 850 mm) for 30 minutes.

Cautionary information regarding waterproofing

- After cleaning manufacturing lines, be sure to wipe away any moisture remaining on the lens.
  Imaging can be affected by moisture on the lens.
- Use water to wash away any cleaning agent adhered to this product.
- Use water to wash away any oils or chemicals adhered to this product.
- The Control Unit connectors (SM connectors) on dedicated cables are not waterproof.

Cautionary information regarding UV products

- Do not expose your eyes or skin to direct UV irradiation.
- When using an UV illumination, be sure to wear UV blocking eye wear and avoid looking at irradiating parts (emitting parts).
- Do not turn on UV-LED irradiating parts (emitting parts) if they are facing someone's eyes.
- Wear long sleeves and gloves to protect your skin from UV irradiation.
- Thoroughly educate all those involved near the product about the dangers of UV LEDs.

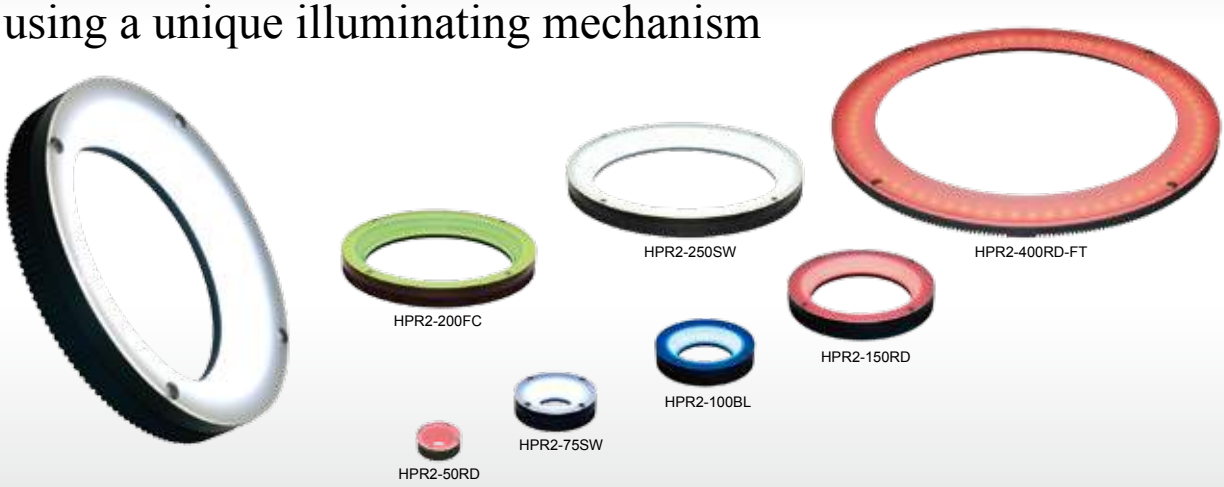
(E.g.) UV blocking eye wear

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

Ring Lights
HPR2 series

Refer to our website for product details.
CCS HPR2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Achieves a uniform region with a high degree of freedom by using a unique illuminating mechanism

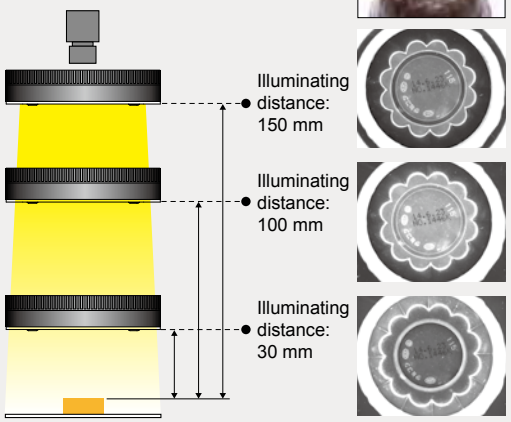


Applications Inspection for damage/stains, visual/color determination inspections, character recognition, text inspection, high angle uniform illumination, and characteristic extraction at low angle, etc.

Supports from low angles to high angles

Provides diffused light from the LEDs without waste using a unique illuminating mechanism. Even if the distance from the workpiece to the Light Unit is changed, there is little variation in the uniform region and it can therefore be used for a wide variety of uses.

Achieves a uniform region with a high degree of freedom

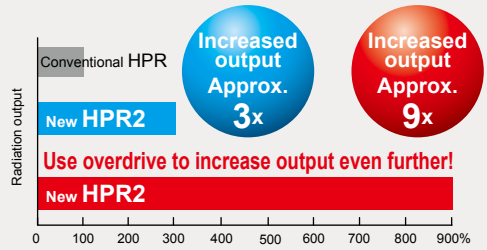


Provides diffused light at high output

It achieves uniform illumination of diffused light at high output using surface-mounted LEDs and a specially processed diffusion plate.

Achieved higher output than the conventional product

■ Output comparison with the conventional product



* This is a comparison between the HPR-100 and HPR2-100, using red and white colors.
* It can be combined with a Strobe Control Unit for even brighter emission than continuous emission.
* The data included is for reference only and does not guarantee the quality of this product.

Added two sizes and a full color (RGB) type

We added the HPR2-75 and HPR2-200 models. Also, we added a full color (RGB) type to the lineup as variation for wavelengths, increasing the applications of our products.

Custom orders

Please contact your CCS sales representative.

E.g.: Different shape

Format/ material

Changed the format to a semicircle to match the workpiece.

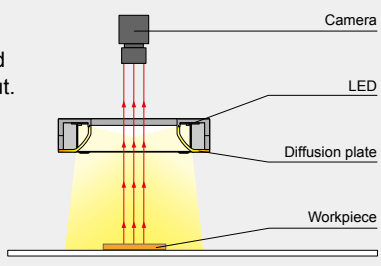
Customizable items

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

Example configuration

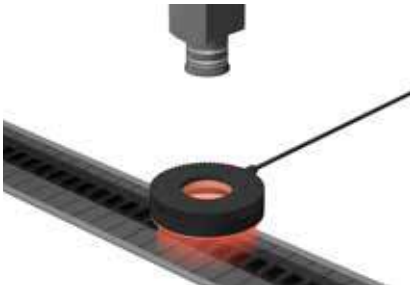
Uses a unique illuminating mechanism to illuminate diffused light at high output.

HPR2-100



We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Imaging example : Imaging of text on electronic parts

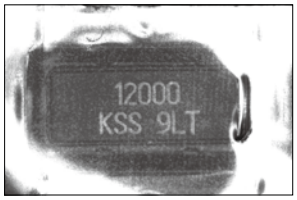


Description	Printing inspection
Workpiece	Electronics part in embossed tape
Before the proposal	LED Ring Light
After the proposal	HPR2-75RD
Result	Improved uniformity

■ Workpiece image

Electronics part in embossed tape

■ LED Ring Light



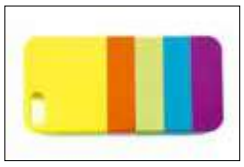
Stable inspection is difficult due to surface reflection.

■ HPR2-75RD

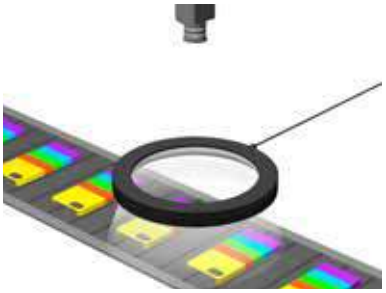
Surface reflection is reduced and an image of the text can be made.

Imaging example : Exterior imaging of a multi-colored workpiece

■ Workpiece image

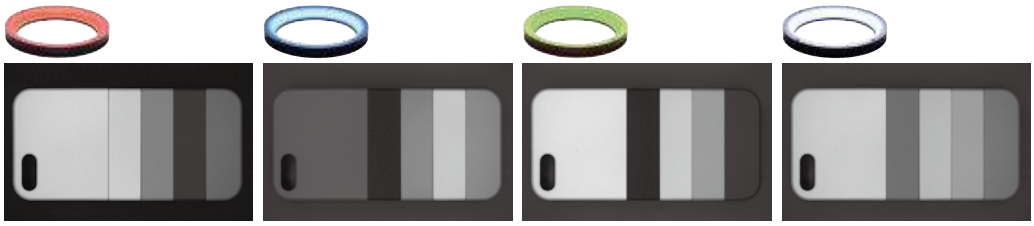


Smartphone case



Description	Visual inspection
Workpiece	Smartphone case
Before the proposal	–
After the proposal	HPR2-200FC: full color (RGB) type
Result	Allows for color determination.

■ HPR2-200FC: full color (RGB) type



Imaging with red illumination | Imaging with blue illumination | Imaging with green illumination | Imaging with white illumination

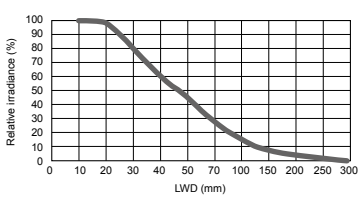
Data: Relative irradiance graph/Uniformity (Representative example)

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

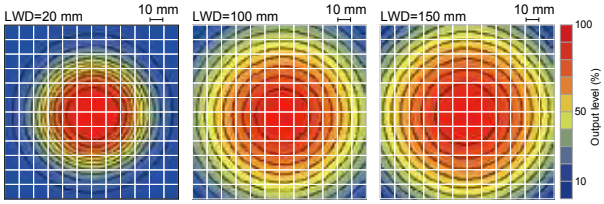
HPR2-75SW

Relative irradiance graph[*1] (LWD Characteristics)[*2]

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



Uniformity (Relative irradiance)



HPR2 series

Refer to our website for product details.
CCS HPR2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
HPR2-50RD	Red	24 V / 7.6 W	635 nm	Bracket	PD3 CC-ST-1024 PSB POD*2	46 g
HPR2-50SW	White	24 V / 9.1 W	6,000 K			
HPR2-50BL	Blue		470 nm			
HPR2-50FC	Red/Green/Blue	24 V / 3.8 W	622 nm/525 nm/470 nm		PD3*1	
HPR2-75RD	Red	24 V / 17 W	635 nm		PD3 PSB POD*2	160 g
HPR2-75SW	White	24 V / 16 W	6,000 K			
HPR2-75BL	Blue		470 nm			
HPR2-75FC	Red/Green/Blue	24 V / 6.0 W	622 nm/525 nm/470 nm		PD3*1	
HPR2-100RD	Red	24 V / 17 W	635 nm		PD3 PSB POD*2	170 g
HPR2-100SW	White	24 V / 23 W	6,000 K			
HPR2-100BL	Blue		470 nm			
HPR2-100FC	Red/Green/Blue	24 V / 11 W	622 nm/525 nm/470 nm		PD3*1	
HPR2-150RD	Red	24 V / 27 W	635 nm		PD3 PSB POD*2	250 g
HPR2-150SW	White		6,000 K			
HPR2-150BL	Blue		470 nm			
HPR2-150FC	Red/Green/Blue	24 V / 15 W	622 nm/525 nm/470 nm		PD3*1	
HPR2-200RD	Red	24 V / 34 W	635 nm		PD3*1 POD*2	380 g
HPR2-200SW	White	24 V / 41 W	6,000 K			
HPR2-200BL	Blue		470 nm			
HPR2-200FC	Red/Green/Blue	24 V / 19 W	622 nm/525 nm/470 nm		PD3*1	
HPR2-250RD	Red	24 V / 45 W	635 nm		PD3*1 POD*2	510 g
HPR2-250SW	White	24 V / 46 W	6,000 K			
HPR2-250BL	Blue		470 nm			
HPR2-250FC	Red/Green/Blue	24 V / 24 W	622 nm/525 nm/470 nm		PD3*1	
HPR2-400RD-FT	Red	24 V / 45 W	635 nm	–	PD3*1 POD*2	1,050 g
HPR2-400SW-FT	White	24 V / 46 W	6,000 K			
HPR2-400BL-FT	Blue		470 nm			
HPR2-400FC-FT	Red/Green/Blue	24 V / 30 W	622 nm/525 nm/470 nm		PD3*1	

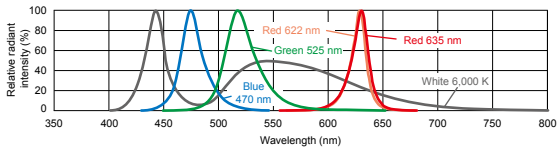
*1: Use a 3-channel Control Unit for a full color (RGB) type.

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*2: 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

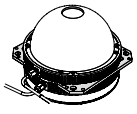
Light spectrum



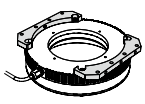
If using a sharp-cut filter, please use the R60 (option).
For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Options



Combine with the Dome Light HPD2 series to achieve imaging by light switching and simultaneous lighting.



Achieves installation using installation holes with a larger gap than the Light Unit body installation holes, or installation on a vertical surface.

Light joint bracket

Model name	Applicable Light Unit (Common for all colors)
BK-75-JO	HPR2-75 series
BK-100-JO	HPR2-100 series
BK-150-JO	HPR2-150 series
BK-200-JO	HPR2-200 series
BK-250-JO	HPR2-250 series

▶ P.227

Expansion mounting bracket

Model name	Applicable Light Unit (Common for all colors)
BK-50-CI	HPR2-50 series
BK-75-CI	HPR2-75 series
BK-100-CI	HPR2-100 series
BK-150-CI	HPR2-150 series
BK-200-CI	HPR2-200 series
BK-250-CI	HPR2-250 series

▶ P.228

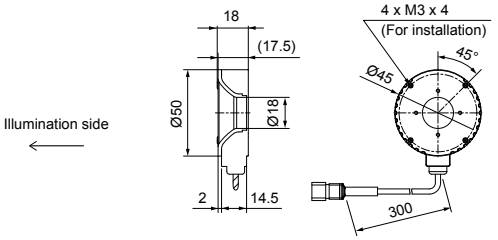
● Example of the expansion mounting bracket in use

Ring Light: Image of usage with the HPR2-200RD

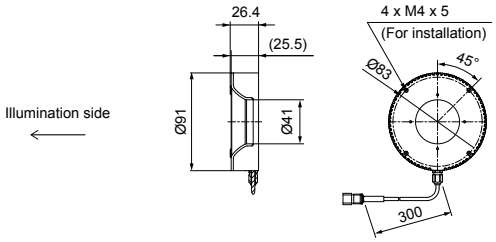
We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Dimensions (mm)

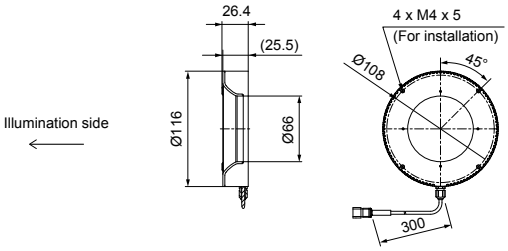
HPR2-50RD/SW/BL/FC



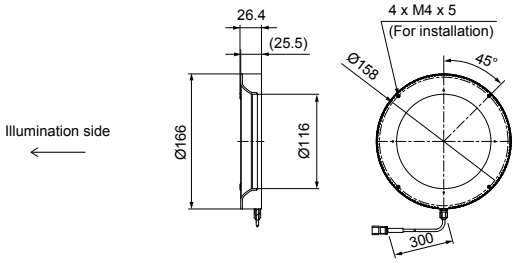
HPR2-75RD/SW/BL/FC



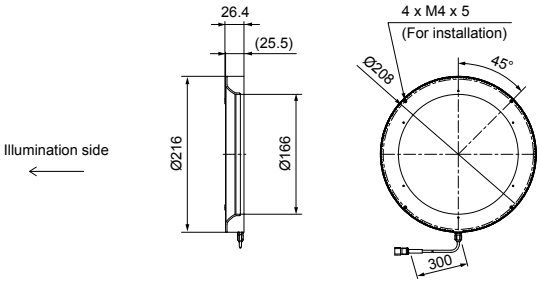
HPR2-100RD/SW/BL/FC



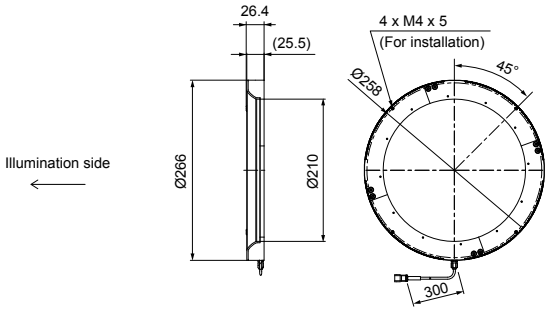
HPR2-150RD/SW/BL/FC



HPR2-200RD/SW/BL/FC

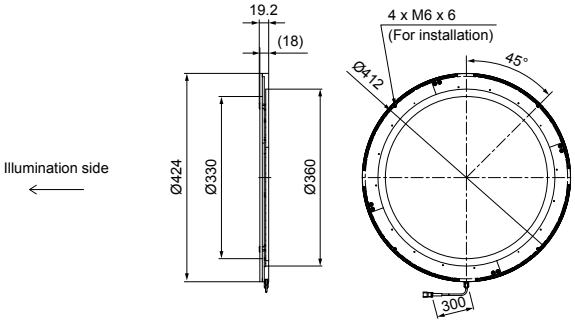


HPR2-250RD/SW/BL/FC

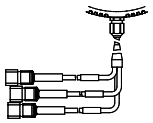


* The HPR2-250 model has a curved diffusion plate.
Be aware this differs from the conventional product.

HPR2-400RD-FT/SW-FT/BL-FT/FC-FT



* The HPR2-400-FT has a flat diffusion plate.



* The full color type (HPR2-□□FC, HPR2-400FC-FT) has three connectors.
Use a 3-channel Control Unit if controlling intensity separately for each color.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Ring Lights
LFR series

Refer to our website for product details.
CCS LFR ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

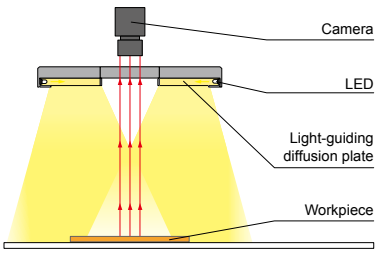
Diffused illumination from a flat emitting surface

Applications	Inspection for parts mounted on circuit boards, surface inspection for metal parts, inspection for faults on bottle tops, character recognition, text inspection, and color determination inspection, etc.

Characteristics

LEDs embedded around a circular light-guiding diffusion plate.
Uniformly diffused light is illuminated from a flat emitting surface.

Example configuration (LFR-100)

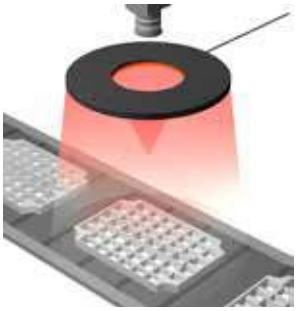


We accept custom orders.
Please feel free to inquire.

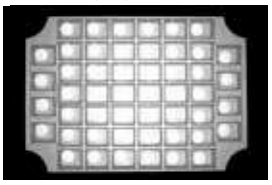
- Change to format
- Increase brightness
- Change to wavelength, etc.

Imaging example: Imaging for detecting contents of a tray

Workpiece: Contents of a tray

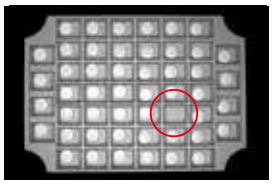


■LED Ring Light



Illuminated light converges in the center, making stable inspection difficult.

■LFR-250RD2



The whole thing is illuminated evenly, allowing for detection of present contents.

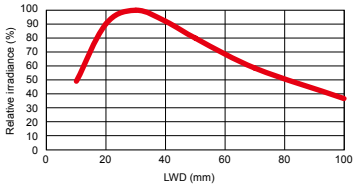
Data: Relative irradiance graph/Uniformity (Representative example)

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

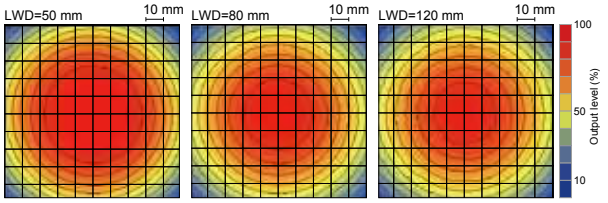
LFR-130RD2

Relative irradiance graph (LWD Characteristics)*2

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



Uniformity (Relative irradiance)



We have various materials.
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Download here.
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Lineup

* End of the model name: -K: Type with angled emitting surface

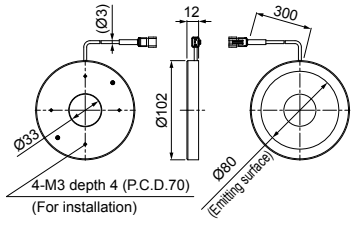
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LFR-100RD2	Red	24 V / 3.6 W	630 nm	–	PD3, CC-ST-1024, PSB, POD*1	120 g
LFR-100SW2	White	24 V / 4.6 W	5,500 K			170 g
LFR-100BL2	Blue		470 nm			
LFR-100GR2	Green	24 V / 4.5 W	525 nm			
LFR-100RD2-K	Red	24 V / 3.6 W	630 nm			140 g
LFR-100KSW2	White	24 V / 4.6 W	5,500 K			
LFR-100BL2-K	Blue		470 nm			190 g
LFR-100GR2-K	Green	24 V / 4.5 V	525 nm			
LFR-130RD2	Red	24 V / 4.6 W	630 nm			250 g
LFR-130SW2	White	24 V / 5.7 W	5,500 K			
LFR-130BL2	Blue		470 nm			
LFR-130GR2	Green		525 nm			
LFR-130RD2-K	Red	24 V / 4.6 W	630 nm			190 g
LFR-130KSW2	White	24 V / 5.7 W	5,500 K			200 g
LFR-130BL2-K	Blue		470 nm			190 g
LFR-130GR2-K	Green		525 nm			
LFR-200RD2	Red	24 V / 8.1 W	630 nm		PD3, CC-ST-1024*, PSB, POD*1 *Can only use red.	490 g
LFR-200SW2	White	24 V / 11 W	5,500 K			
LFR-200BL2	Blue		470 nm			
LFR-250RD2	Red	24 V / 11 W	630 nm		PD3, PSB, POD*1	1,080 g
LFR-250SW2	White	24 V / 13 W	5,500 K			1,090 g
LFR-250BL2	Blue		470 nm			1,080 g
LFR-330RD2	Red	24 V / 14 W	630 nm		PD3, PSB, POD*1	1,500 g

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

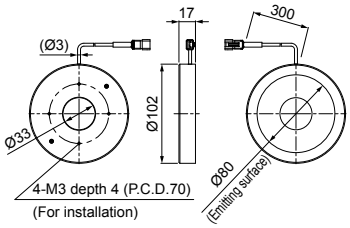
Dimensions (mm)

LFR-100RD2/SW2/BL2/GR2



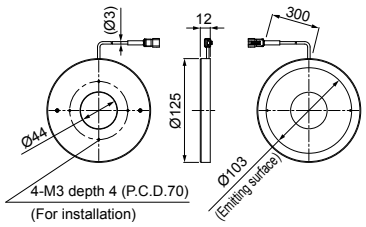
* The emitting surface for the LFR-100SW2/BL2/GR2 is Ø77.

LFR-100RD2-K/KSW2/BL2-K/GR2-K

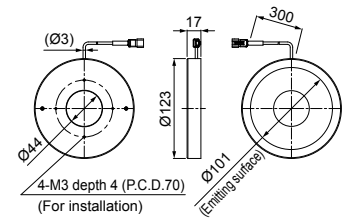


* The emitting surface for the LFR-100KSW2/BL2-K/GR2-K is Ø78.

LFR-130RD2/SW2/BL2/GR2

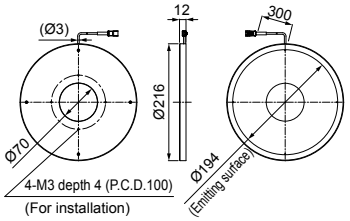


LFR-130RD2-K/KSW2/BL2-K/GR2-K



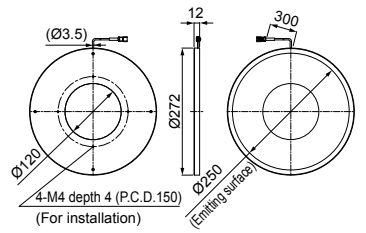
* The emitting surface for the LFR-130KSW2 is Ø99.

LFR-200RD2/SW2/BL2



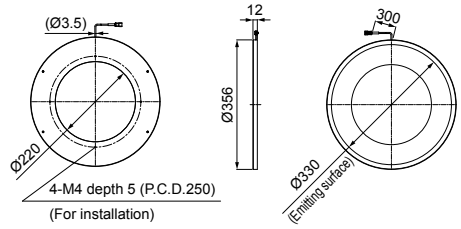
* The emitting surface for the LFR-200SW2/BL2 is Ø193.

LFR-250RD2/SW2/BL2



* The emitting surface for the LFR-250SW2/BL2 is Ø246.

LFR-330RD2



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

You can inquire using our website. Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries

Inquire on our website here. http://www.ccs-grp.com/contact/

Ring Lights
LKR series

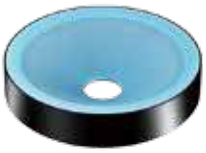
Refer to our website for product details.
CCS LKR ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light from an angled emitting surface


LKR-70RD2


LKR-70SW2


LKR-70-8GR2

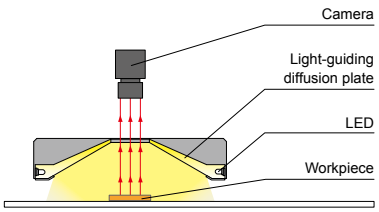

LKR-125BL2

Applications Soldering inspection, parts identification with color, inspection for stains on glossy surfaces, character recognition on metal parts, and dent inspection on metal parts, etc.

Characteristics

LEDs embedded around a circular light-guiding diffusion plate.
Uniformly diffused light from an emitting surface angled with respect to the workpiece.

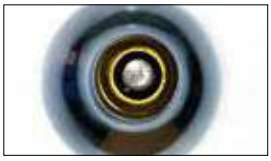
Example configuration (LKR-125)



We accept custom orders.
Please feel free to inquire.

- Change to format
- Increase brightness
- Change to wavelength, etc.

Imaging example: Imaging of soldering at the cap of a light bulb


Workpiece: Light bulb

■LED Diffused Lighting


It is difficult to evenly illuminate the whole solder.

⇒

■LKR-125SW2


It is possible to evenly illuminate the whole solder, including the cap.

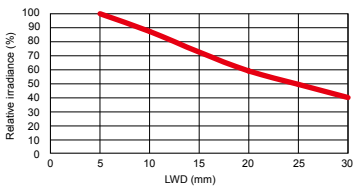
Data: Relative irradiance graph/Uniformity (Representative example)

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

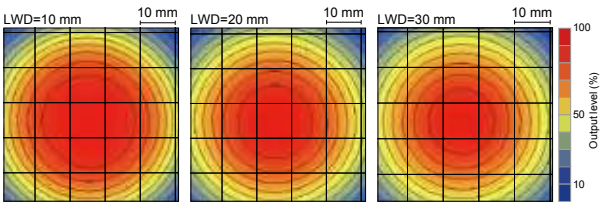
LKR-70RD2

Relative irradiance graph (LWD Characteristics) *2 *1

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



Uniformity (Relative irradiance)



We have various materials.
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Download here.
http://www.ccs-grp.com/dl/

Lineup

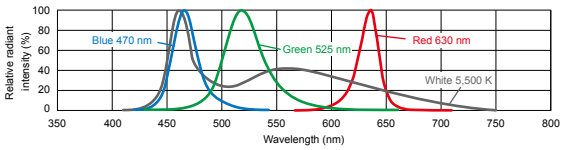
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LKR-70RD2	Red	24 V / 2.6 W	630 nm	–	PD3 CC-ST-1024 PSB POD*	125 g
LKR-70SW2	White	24 V / 3.8 W	5,500 K			130 g
LKR-70BL2	Blue		470 nm			125 g
LKR-70GR2	Green		525 nm			
LKR-70-8RD2	Red	24 V / 2.6 W	630 nm			140 g
LKR-70-8SW2	White	24 V / 3.8 W	5,500 K			
LKR-70-8BL2	Blue		470 nm			
LKR-70-8GR2	Green		525 nm			
LKR-125RD2	Red	24 V / 4.6 W	630 nm			295 g
LKR-125SW2	White	24 V / 5.7 W	5,500 K			300 g
LKR-125BL2	Blue		470 nm			490 g
LKR-125GR2	Green		525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* 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

Light spectrum

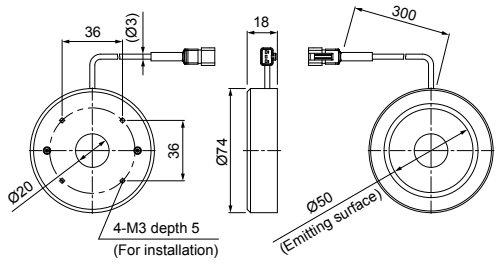


If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

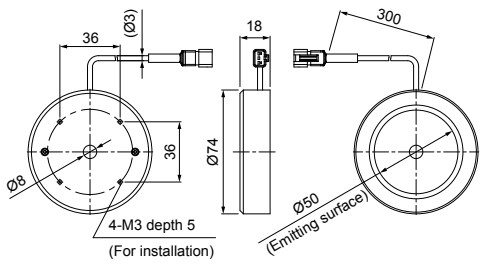
Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Dimensions (mm)

LKR-70RD2/SW2/BL2/GR2

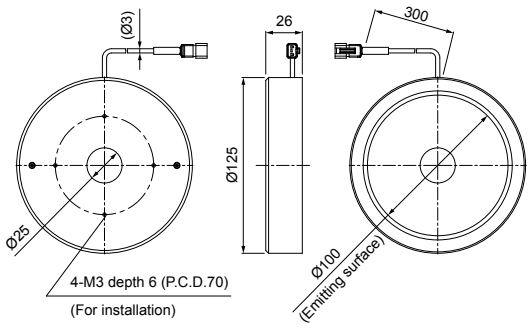


LKR-70-8RD2/SW2/BL2/GR2



* The emitting surface for the LKR-70-8SW2/BL2/GR2 is Ø49.2.

LKR-125RD2/SW2/BL2/GR2



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Low-angle Ring Lights
FPR series

Refer to our website for product details.
CCS FPR ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light at a low angle from an angled emitting surface


FPR-100RD2


FPR-100GR2


FPR-136BL2

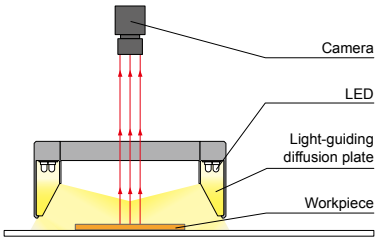

FPR-180SW2

Applications	Edge extraction of metal parts, character recognition for electronic parts, inspection for parts on circuit boards, label inspections, and imaging of alignment marks, etc.

Characteristics

Light from the vertically-arranged LEDs is transmitted through the light-guiding diffusion plate and uniform diffused light is illuminated centrally on the workpiece from a low angle.

Example configuration (FPR-100)



We accept custom orders.
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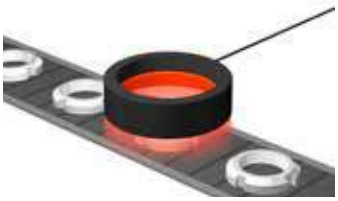
- Change to format
- Increase brightness
- Change to wavelength, etc.

Imaging example: Exterior imaging for metal parts


Workpiece: Nut for bearings



■LED Ring Light


It is difficult to evenly illuminate the slanted exterior.

■FPR-136RD2


It is possible to evenly illuminate the slanted exterior.

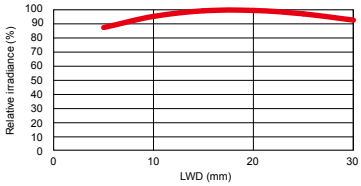
Data: Relative irradiance graph/Uniformity (Representative example)

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

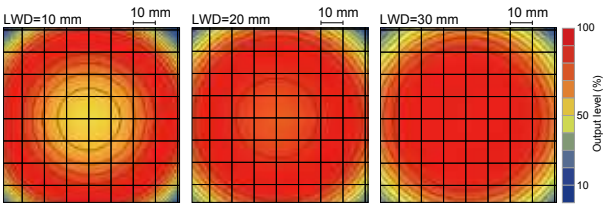
FPR-100RD2

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



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

Lineup

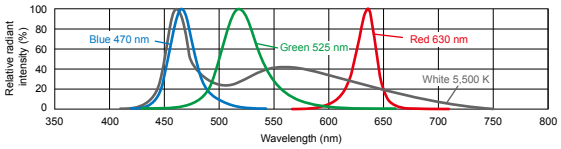
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
FPR-100RD2	Red	24 V / 6.1 W	630 nm	–	PD3 CC-ST-1024 PSB POD*1	220 g
FPR-100SW2	White	24 V / 7.6 W	5,500 K			
FPR-100BL2	Blue		470 nm			
FPR-100GR2	Green		525 nm			
FPR-136RD2	Red	24 V / 9.1 W	630 nm		PD3 CC-ST-1024* PSB POD*1 *Can only use red.	300 g
FPR-136SW2	White	24 V / 12 W	5,500 K			280 g
FPR-136BL2	Blue		470 nm			300 g
FPR-136GR2	Green		525 nm			
FPR-180RD2	Red	24 V / 13 W	630 nm		PD3 PSB POD*1	400 g
FPR-180SW2	White	24 V / 16 W	5,500 K			380 g
FPR-180BL2	Blue		470 nm			400 g
FPR-180GR2	Green		525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

Light spectrum

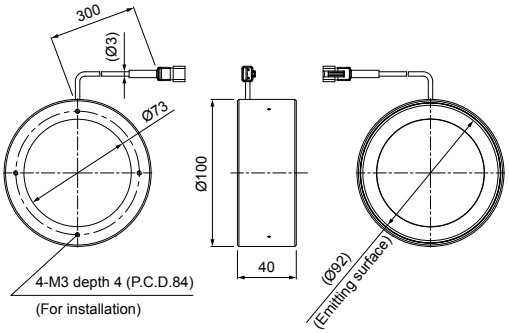


If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

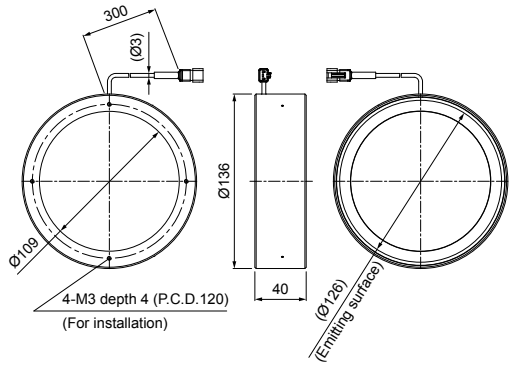
Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Dimensions (mm)

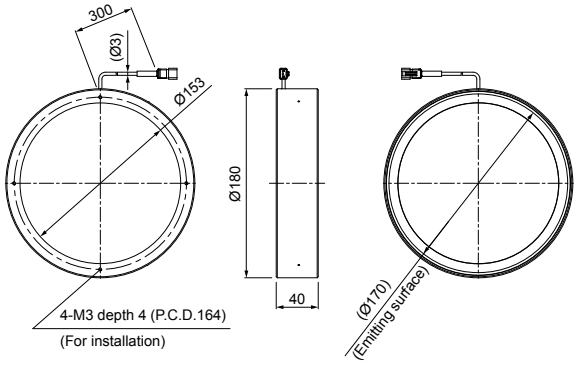
FPR-100RD2/SW2/BL2/GR2



FPR-136RD2/SW2/BL2/GR2



FPR-180RD2/SW2/BL2/GR2



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Low-angle Square Lights
FPQ2 series

Refer to our website for product details.
CCS FPQ2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

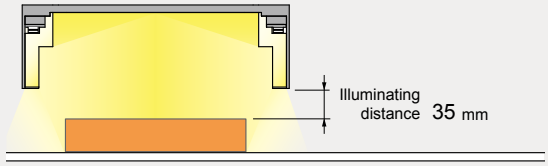
Provides diffused light at a low angle from four directions

Applications Visual inspection for electronic parts, character recognition, inspection for bending, slipping, or staining of pins and leads, visual and pattern inspections for circuit boards, fault inspection for LCDs, and IC lead inspection, etc.

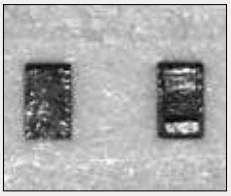
Perfect for square workpieces

The FPQ2 series is a low angle Light Unit perfect for square workpieces. It can detect the outline of corners and prevents glare, which are difficult with Ring Lights.

Imaging example for the FPQ2-48RD: Imaging for detecting electronics parts

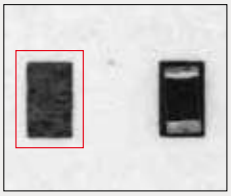


LED Ring Light



There is glare from the surface film and it is difficult to determine if the part is there.

FPQ2-48RD

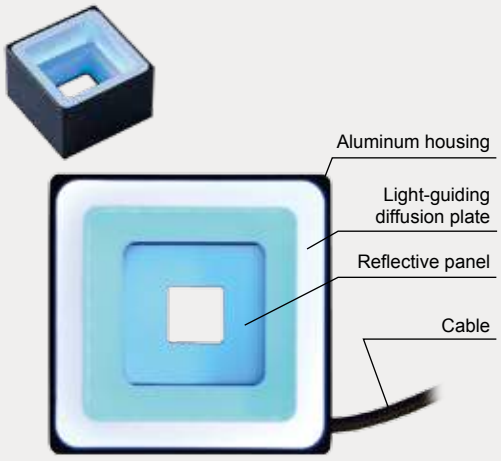


Film glare is removed, making it possible to determine if the part is there.

Illuminates diffused light from four directions

It is a diffused lighting with a square case. Light from the LEDs installed above is transmitted through the light-guiding diffusion plate and diffused light is illuminated from four directions on the workpiece from a low angle.

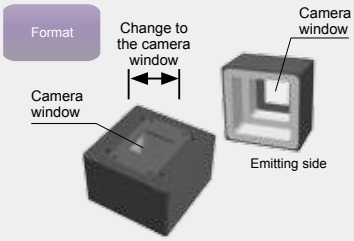
Illumination image for the FPQ2-48BL



Custom orders

Please contact your CCS sales representative.

E.g.: Changed format so that the Light Unit did not overlap with the field of vision.



Customizable items

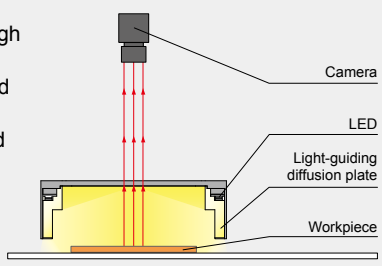
- External/internal diameter
- Wavelength/ color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

Etc.

Example configuration

Light illuminated from the LEDs is transmitted through the light-guiding diffusion plate and uniform diffused light is illuminated centrally on the workpiece from a low angle.

FPQ2-96



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Imaging example : Exterior imaging for extremely small coil

Description	Visual inspection
Workpiece	Coil
Before the proposal	LED Ring Light
After the proposal	FPQ2-20SW
Result	Improved uniformity

Workpiece image

Coil

LED Ring Light

It is difficult to evenly form an exterior image of the coil.

FPQ2-20SW

It is possible to evenly form an exterior image of the coil.

Imaging example : Imaging of date printed on food container

Description	Text inspection
Workpiece	Food container
Before the proposal	LED Ring Light
After the proposal	FPQ2-120RD
Result	Improved uniformity

Workpiece image

Food container

LED Ring Light

Due to effect from the glossiness and bumps on the surface, it is difficult to get a clear image of the text.

FPQ2-120RD

The surface is illuminated evenly, allowing for a clear image of the text.

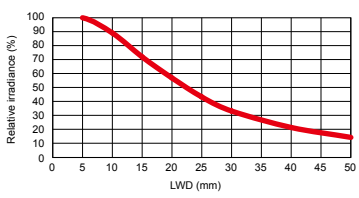
Data: Relative irradiance graph/Uniformity (Representative example)

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

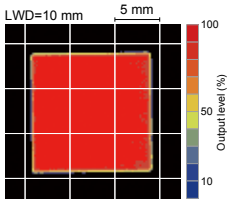
FPQ2-48RD

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



FPQ2 series

Refer to our website for product details.
CCS FPQ2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

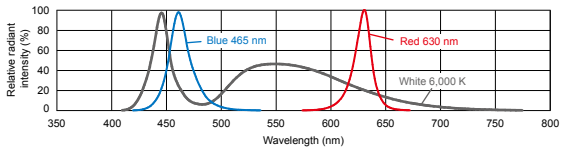
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
FPQ2-20RD	Red	24 V / 1.5 W	630 nm	–	PD3 CC-ST-1024 PSB POD*1	25 g
FPQ2-20SW	White	24 V / 2.6 W	6,000 K			
FPQ2-20BL	Blue	24 V / 1.8 W	465 nm			
FPQ2-32RD	Red	24 V / 6.1 W	630 nm			50 g
FPQ2-32SW	White	24 V / 5.1 W	6,000 K			
FPQ2-32BL	Blue	24 V / 3.1 W	465 nm			
FPQ2-48RD	Red	24 V / 5.8 W	630 nm		PD3 CC-ST-1024* PSB POD*1 * Can only use red and blue.	85 g
FPQ2-48SW	White	24 V / 11 W	6,000 K			
FPQ2-48BL	Blue	24 V / 7.1 W	465 nm			
FPQ2-75RD	Red	24 V / 17 W	630 nm		PD3 CC-ST-1024* PSB POD*1 * Can only use blue.	145 g
FPQ2-75SW	White	24 V / 16 W	6,000 K			
FPQ2-75BL	Blue	24 V / 9.1 W	465 nm			
FPQ2-96RD	Red	24 V / 15 W	630 nm			160 g
FPQ2-96SW	White	24 V / 21 W	6,000 K			
FPQ2-96BL	Blue	24 V / 13 W	465 nm		PD3	
FPQ2-120RD	Red	24 V / 18 W	630 nm		PSB POD*1	200 g
FPQ2-120SW	White	24 V / 21 W	6,000 K			
FPQ2-120BL	Blue	24 V / 11 W	465 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

Light spectrum

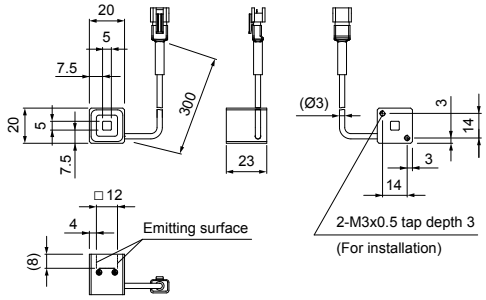


If using a sharp-cut filter, please use the R60 (option).
For details about the sharp-cut filter, refer to P.223.

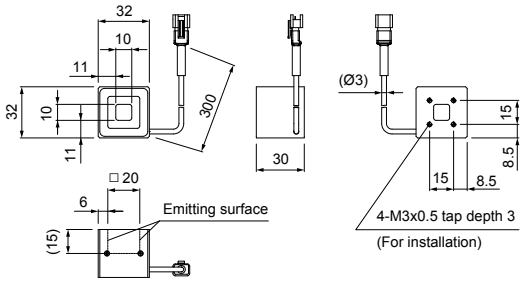
Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Dimensions (mm)

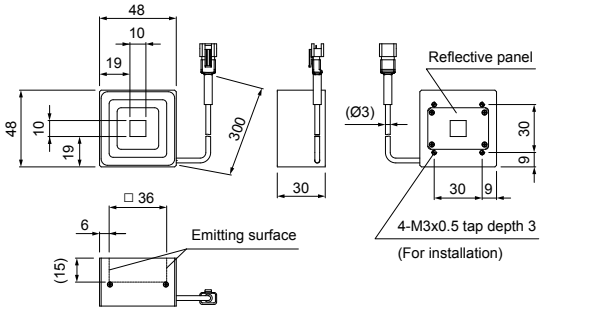
FPQ2-20RD/SW/BL



FPQ2-32RD/SW/BL

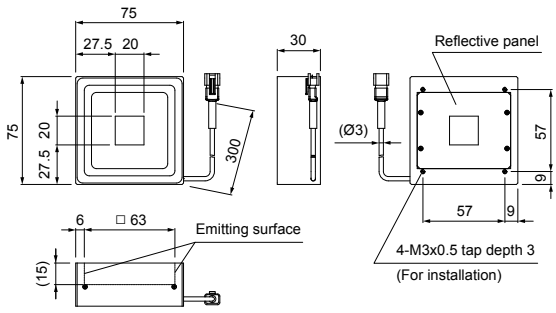


FPQ2-48RD/SW/BL



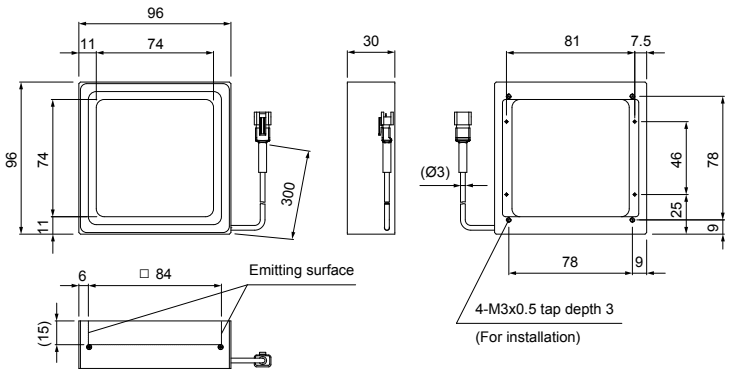
* The reflective panel can be removed.

FPQ2-75RD/SW/BL

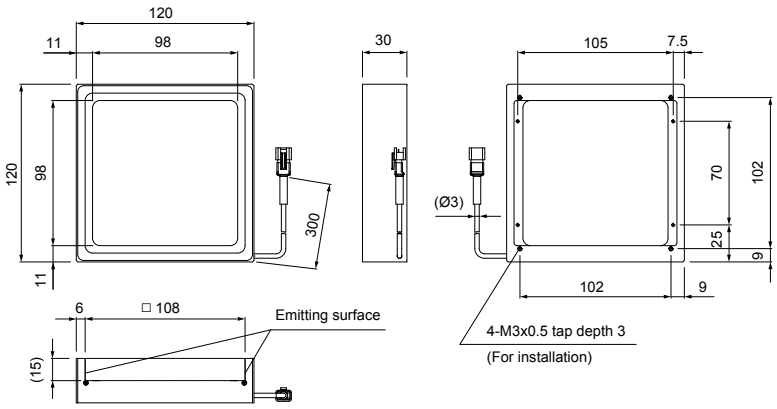


* The reflective panel can be removed.

FPQ2-96RD/SW/BL



FPQ2-120RD/SW/BL



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Bar Lights
LDL2 series

Refer to our website for product details.
CCS LDL2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides direct light from an emitting part equipped with LEDs in straight lines

Applications Various inspections for reading text, visual inspection for damage on long and thin workpieces, damage inspection for metal with hairline finishing, light source for a line sensor camera, and various inspections to detect foreign material, etc.

Rich lineup with 61 models

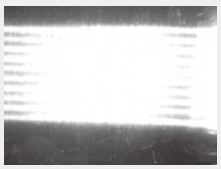
We have a lineup of 61 models, such as combinations of the size and emitting width of the emitting surface, directional characteristics, and the emitted color.

Compatible with a wide range of uses

You can freely adjust the illuminating direction and angle for use in a wide range of uses.

Because Bar Lights can freely adjust their illuminating direction and angle to match the workpiece, they can provide the optimal image.

Illuminating image from direction A



Illuminating image from direction B

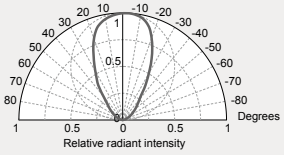
Bar Lights that use surface-mounted LEDs

These are Bar Lights that use surface-mounted LEDs. We provide the narrow type, which performs convergent illumination for a narrow space, and the wide type (-WD) which illuminates a wide space.

Select the directional characteristics of a narrow type or wide type

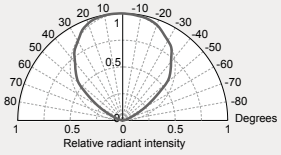
■ Directional characteristics of the Narrow Type (White)

Zoomed-in view of the emitting surface



■ Directional characteristics of the Wide Type (White)

Zoomed-in view of the emitting surface

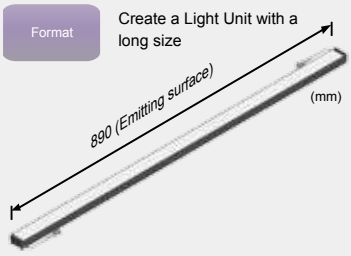


Custom orders

Please contact your CCS sales representative.

E.g.: Different shape

Format → Create a Light Unit with a long size



Customizable items

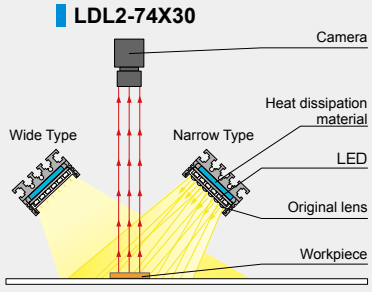
- External/internal diameter
- Wavelength/ color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

Etc.

Example configuration

Achieved light with a narrow directionality using the original lens located in front of the LEDs. Illuminates direct light from any angle.

LDL2-74X30



We have various materials.

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

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

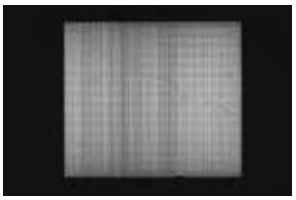
Imaging example : Imaging of damage in sheet metal (hairline finishing)

Description	Visual inspection
Workpiece	Aluminum sheet (hairline finishing)
Before the proposal	LED Bar Light
After the proposal	LDL2-74X30RD Proposed the optimal illuminating angle and illuminating direction
Result	Extracts only the damage

■ Workpiece image

Aluminum sheet (hairline finishing)

■ LED Bar Light



Due to reflection from the hairline finishing surface, it is difficult to form an image of the damage.

■ LDL2-74X30RD

Surface reflection is reduced and a clear image of the damage can be made.

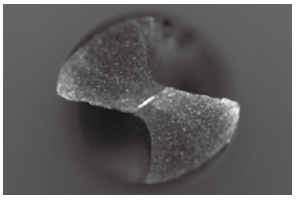
Imaging example : External imaging of drill tips

Description	Visual inspection
Workpiece	Drills
Before the proposal	LED Ring Light
After the proposal	LDL2-41X16RD Proposed the optimal illuminating angle and illuminating direction
Result	Improved uniformity

■ Workpiece image

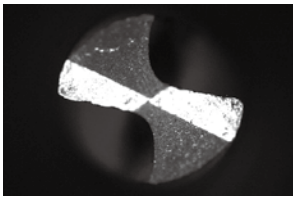
Drills

■ LED Ring Light



It is difficult to form a clear image of the drill tip.

■ LDL2-41X16RD



It is possible to form a clear image of only the blade edge of the drill.

LDL2 series

Refer to our website for product details.

CCS LDL2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Imaging example : Exterior imaging of confectionery packaging

■ Workpiece image

Confectionery packaging

■ LED Ring Light

Due to reflection from the surface, it is difficult to form an image of the characters.

■ LDL2-119X16SW

Surface reflection is removed and a clear image of the characters can be made.

Imaging example : Imaging of printed characters on pet bottles

Description	Printing inspection
Workpiece	Pet bottles
Before the proposal	LED Ring Light
After the proposal	LDL2-146X30SW Proposed the optimal illuminating angle and illuminating direction
Result	Improved uniformity

■ Workpiece image

Pet Bottles

■ LED Ring Light

The influence of illumination projection makes it difficult to capture the characters.

■ LDL2-146X30SW

It prevents the illumination projection, allowing for the characters to be captured.

We have various materials.

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

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

Imaging example : Imaging of scratches on glass bottles

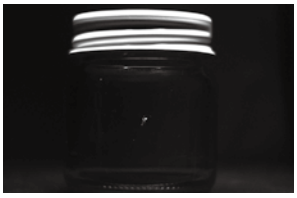
■ Workpiece image

Glass Bottles

■ LED Ring Light

It is difficult to form a clear image of the scratches due to surface reflection.

■ LDL2-74X30RD



It is possible to form a clear image of the scratches without surface reflection.

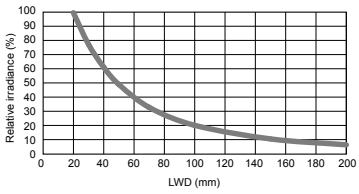
Data: Relative irradiance graph/Uniformity graph (Representative example)

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

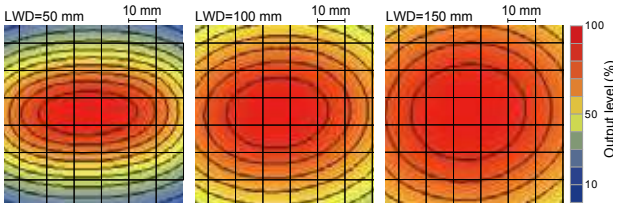
LDL2-74X30SW (Narrow type)

Relative irradiance graph (LWD Characteristics)*2

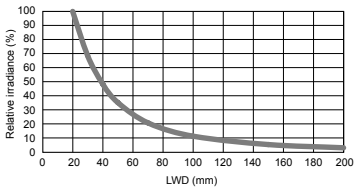
*1: Irradiance on the optical axis
*2: Illuminating distance from the Light Unit to the workpiece

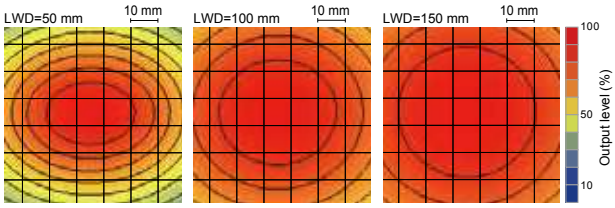


Uniformity graph (Relative irradiance)



LDL2-74X30SW-WD (Wide type)





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

LDL2 series

Refer to our website for product details.

CCS LDL2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup (Standard Products)

* End of the model name: -WD: Wide type

	Model name	LED color	Emitting surface size	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
Emitting width: 8 mm	LDL2-33X8RD*1	Red	33×8 mm	24 V / 1.3 W	635 nm	Diffusion plate, Polarization plate, Bracket	PD3, CC-ST-1024, PSB, POD*3 * Can only use red, white, blue, and green.	20 g
	LDL2-33X8SW*1	White		24 V / 0.8 W	6,600 K			
	LDL2-33X8BL*1	Blue			470 nm			
	LDL2-33X8GR*1	Green			525 nm			
	LDL2-33X8IR850*1*2	Infrared		24 V / 1.3 W	850 nm			
Emitting width: 16 mm	LDL2-41X16RD	Red	41×16 mm	24 V / 1.9 W	635 nm	Diffusion plate, Polarization plate, Protective panel, Bracket	PD3, CC-ST-1024, PSB, POD*3	50 g
	LDL2-41X16SW	White			6,600 K			
	LDL2-41X16BL	Blue			470 nm			
	LDL2-41X16GR	Green			525 nm			
	LDL2-41X16RD-WD	Red	41×16 mm	24 V / 1.9 W	635 nm			50 g
	LDL2-41X16SW-WD	White			6,600 K			
	LDL2-41X16BL-WD	Blue			470 nm			
	LDL2-41X16GR-WD	Green			525 nm			
	LDL2-80X16RD	Red	80×16 mm	24 V / 3.8 W	635 nm			75 g
	LDL2-80X16SW	White			6,600 K			
	LDL2-80X16BL	Blue			470 nm			
	LDL2-80X16GR	Green			525 nm			
	LDL2-80X16RD-WD	Red	80×16 mm	24 V / 3.8 W	635 nm			75 g
	LDL2-80X16SW-WD	White			6,600 K			
	LDL2-80X16BL-WD	Blue			470 nm			
	LDL2-80X16GR-WD	Green			525 nm			
	LDL2-119X16RD	Red	119×16 mm	24 V / 5.7 W	635 nm			95 g
	LDL2-119X16SW	White			6,600 K			
	LDL2-119X16BL	Blue			470 nm			
	LDL2-119X16GR	Green			525 nm			
	LDL2-119X16RD-WD	Red	119×16 mm	24 V / 5.7 W	635 nm			95 g
	LDL2-119X16SW-WD	White			6,600 K			
	LDL2-119X16BL-WD	Blue			470 nm			
	LDL2-119X16GR-WD	Green			525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*1: All LEDs of the LDL2-33X8 have wide type directional characteristics.
*2: Please inquire if you would like to use in combination with a Strobe Control Unit (overdrive type).
*3: 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

* End of the model name: -WD: Wide type

Model name	LED color	Emitting surface size	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LDL2-74X30RD	Red	74×30 mm	24 V / 5.7 W	635 nm		PD3 CC-ST-1024 PSB POD*1	100 g
LDL2-74X30SW	White			6,600 K			
LDL2-74X30BL	Blue			470 nm			
LDL2-74X30GR	Green			525 nm			
LDL2-74X30RD-WD	Red	74×30 mm	24 V / 5.7 W	635 nm			100 g
LDL2-74X30SW-WD	White			6,600 K			
LDL2-74X30BL-WD	Blue			470 nm			
LDL2-74X30GR-WD	Green			525 nm			
LDL2-146X30RD	Red	146×30 mm	24 V / 12 W	635 nm			170 g
LDL2-146X30SW	White			6,600 K			
LDL2-146X30BL	Blue			470 nm			
LDL2-146X30GR	Green			525 nm			
LDL2-146X30RD-WD	Red	146×30 mm	24 V / 12 W	635 nm			170 g
LDL2-146X30SW-WD	White			6,600 K			
LDL2-146X30BL-WD	Blue			470 nm			
LDL2-146X30GR-WD	Green			525 nm			
LDL2-218X30RD	Red	218×30 mm	24 V / 18 W	635 nm			240 g
LDL2-218X30SW	White			6,600 K			
LDL2-218X30BL	Blue			470 nm			
LDL2-218X30GR	Green			525 nm			
LDL2-218X30RD-WD	Red	218×30 mm	24 V / 18 W	635 nm			240 g
LDL2-218X30SW-WD	White			6,600 K			
LDL2-218X30BL-WD	Blue			470 nm			
LDL2-218X30GR-WD	Green			525 nm			
LDL2-266X30RD	Red	266×30 mm	24 V / 21 W	635 nm			280 g
LDL2-266X30SW	White			6,600 K			
LDL2-266X30BL	Blue			470 nm			
LDL2-266X30GR	Green			525 nm			
LDL2-266X30RD-WD	Red	266×30 mm	24 V / 21 W	635 nm			280 g
LDL2-266X30SW-WD	White			6,600 K			
LDL2-266X30BL-WD	Blue			470 nm			
LDL2-266X30GR-WD	Green			525 nm			

Emitting width: 30 mm

Options: Diffusion plate, Polarization plate, Protective panel, Bracket

Recommended Control Units: PD3, PSB, POD*1

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

LDL2 series

Refer to our website for product details.

CCS LDL2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup (Special Orders)

* End of the model name: -WD: Wide type

	Model name	LED color	Emitting surface size	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
Emitting width: 16 mm	LDL2-158X16RD (-WD)	Red	158×16 mm	24 V / 7.6 W	635 nm	Please inquire for more information.	PD3 CC-ST-1024 PSB POD*1	120 g
	LDL2-158X16SW (-WD)	White			6,600 K			
	LDL2-158X16BL (-WD)	Blue			470 nm			
	LDL2-158X16GR (-WD)	Green			525 nm			
	LDL2-197X16RD (-WD)	Red	197×16 mm	24 V / 9.5 W	635 nm			145 g
	LDL2-197X16SW (-WD)	White			6,600 K			
	LDL2-197X16BL (-WD)	Blue			470 nm			
	LDL2-197X16GR (-WD)	Green			525 nm			
	LDL2-236X16RD (-WD)	Red	236×16 mm	24 V / 12 W	635 nm			170 g
	LDL2-236X16SW (-WD)	White			6,600 K			
	LDL2-236X16BL (-WD)	Blue			470 nm			
	LDL2-236X16GR (-WD)	Green			525 nm			
	LDL2-275X16RD (-WD)	Red	275×16 mm	24 V / 14 W	635 nm			195 g
	LDL2-275X16SW (-WD)	White			6,600 K			
	LDL2-275X16BL (-WD)	Blue			470 nm			
	LDL2-275X16GR (-WD)	Green			525 nm			
	LDL2-314X16RD (-WD)	Red	314×16 mm	24 V / 16 W	635 nm			220 g
	LDL2-314X16SW (-WD)	White			6,600 K			
	LDL2-314X16BL (-WD)	Blue			470 nm			
	LDL2-314X16GR (-WD)	Green			525 nm			
	LDL2-353X16RD (-WD)	Red	353×16 mm	24 V / 18 W	635 nm			245 g
	LDL2-353X16SW (-WD)	White			6,600 K			
	LDL2-353X16BL (-WD)	Blue			470 nm			
	LDL2-353X16GR (-WD)	Green			525 nm			
	LDL2-392X16RD (-WD)	Red	392×16 mm	24 V / 19 W	635 nm			270 g
	LDL2-392X16SW (-WD)	White			6,600 K			
	LDL2-392X16BL (-WD)	Blue			470 nm			
	LDL2-392X16GR (-WD)	Green			525 nm			
	LDL2-431X16RD (-WD)	Red	431×16 mm	24 V / 21 W	635 nm			295 g
	LDL2-431X16SW (-WD)	White			6,600 K			
	LDL2-431X16BL (-WD)	Blue			470 nm			
	LDL2-431X16GR (-WD)	Green			525 nm			
	LDL2-470X16RD (-WD)	Red	470×16 mm	24 V / 23 W	635 nm			320 g
	LDL2-470X16SW (-WD)	White			6,600 K			
	LDL2-470X16BL (-WD)	Blue			470 nm			
	LDL2-470X16GR (-WD)	Green			525 nm			
	LDL2-509X16RD (-WD)	Red	509×16 mm	24 V / 25 W	635 nm			345 g
	LDL2-509X16SW (-WD)	White			6,600 K			
	LDL2-509X16BL (-WD)	Blue			470 nm			
	LDL2-509X16GR (-WD)	Green			525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

* End of the model name: -WD: Wide type

Model name	LED color	Emitting surface size	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LDL2-26X30RD (-WD)	Red	26×30 mm	24 V / 1.9 W	635 nm	Please inquire for more information.	PD3 CC-ST-1024 PSB POD*1	55 g
LDL2-26X30SW (-WD)	White			6,600 K			
LDL2-26X30BL (-WD)	Blue			470 nm			
LDL2-26X30GR (-WD)	Green			525 nm			
LDL2-50X30RD (-WD)	Red	50×30 mm	24 V / 3.8 W	635 nm			80 g
LDL2-50X30SW (-WD)	White			6,600 K			
LDL2-50X30BL (-WD)	Blue			470 nm			
LDL2-50X30GR (-WD)	Green			525 nm			
LDL2-98X30RD (-WD)	Red	98×30 mm	24 V / 7.6 W	635 nm			125 g
LDL2-98X30SW (-WD)	White			6,600 K			
LDL2-98X30BL (-WD)	Blue			470 nm			
LDL2-98X30GR (-WD)	Green			525 nm			
LDL2-122X30RD (-WD)	Red	122×30 mm	24 V / 9.5 W	635 nm			150 g
LDL2-122X30SW (-WD)	White			6,600 K			
LDL2-122X30BL (-WD)	Blue			470 nm			
LDL2-122X30GR (-WD)	Green			525 nm			
LDL2-170X30RD (-WD)	Red	170×30 mm	24 V / 14 W	635 nm			200 g
LDL2-170X30SW (-WD)	White			6,600 K			
LDL2-170X30BL (-WD)	Blue			470 nm			
LDL2-170X30GR (-WD)	Green			525 nm			
LDL2-194X30RD (-WD)	Red	194×30mm	24 V / 16 W	635 nm			225 g
LDL2-194X30SW (-WD)	White			6,600 K			
LDL2-194X30BL (-WD)	Blue			470 nm			
LDL2-194X30GR (-WD)	Green			525 nm			
LDL2-242X30RD (-WD)	Red	242×30mm	24 V / 19 W	635 nm			275 g
LDL2-242X30SW (-WD)	White			6,600 K			
LDL2-242X30BL (-WD)	Blue			470 nm			
LDL2-242X30GR (-WD)	Green			525 nm		PD3 PSB POD*1	
LDL2-290X30RD (-WD)	Red	290×30mm	24 V / 23 W	635 nm			325 g
LDL2-290X30SW (-WD)	White			6,600 K			
LDL2-290X30BL (-WD)	Blue			470 nm			
LDL2-290X30GR (-WD)	Green			525 nm			
LDL2-314X30RD (-WD)	Red	314×30mm	24 V / 25 W	635 nm			350 g
LDL2-314X30SW (-WD)	White			6,600 K			
LDL2-314X30BL (-WD)	Blue			470 nm			
LDL2-314X30GR (-WD)	Green			525 nm			
LDL2-338X30RD (-WD)	Red	338×30mm	24 V / 27 W	635 nm			375 g
LDL2-338X30SW (-WD)	White			6,600 K			
LDL2-338X30BL (-WD)	Blue			470 nm			
LDL2-338X30GR (-WD)	Green			525 nm			

Emitting width: 30 mm

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

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LDL2 series

Refer to our website for product details.

CCS LDL2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

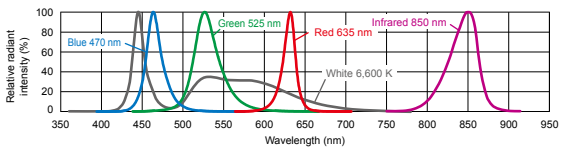
* End of the model name: -WD: Wide type

	Model name	LED color	Emitting surface size	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
Emitting width: 30 mm	LDL2-362X30RD (-WD)	Red	362×30mm	24 V / 29 W	635 nm	Please inquire for more information.	PD3 PSB	400 g
	LDL2-362X30SW (-WD)	White			6,600 K			
	LDL2-362X30BL (-WD)	Blue			470 nm			
	LDL2-362X30GR (-WD)	Green			525 nm			
	LDL2-386X30RD (-WD)	Red	386×30mm	24 V / 31 W	635 nm			425 g
	LDL2-386X30SW (-WD)	White			6,600 K			
	LDL2-386X30BL (-WD)	Blue			470 nm			
	LDL2-386X30GR (-WD)	Green			525 nm			
	LDL2-410X30RD (-WD)	Red	410×30mm	24 V / 33 W	635 nm			450 g
	LDL2-410X30SW (-WD)	White			6,600 K			
	LDL2-410X30BL (-WD)	Blue			470 nm			
	LDL2-410X30GR (-WD)	Green			525 nm			
	LDL2-434X30RD (-WD)	Red	434×30mm	24 V / 35 W	635 nm			475 g
	LDL2-434X30SW (-WD)	White			6,600 K			
	LDL2-434X30BL (-WD)	Blue			470 nm			
	LDL2-434X30GR (-WD)	Green			525 nm			
	LDL2-458X30RD (-WD)	Red	458×30mm	24 V / 37 W	635 nm			500 g
	LDL2-458X30SW (-WD)	White			6,600 K			
	LDL2-458X30BL (-WD)	Blue			470 nm			
	LDL2-458X30GR (-WD)	Green			525 nm			
	LDL2-482X30RD (-WD)	Red	482×30mm	24 V / 38 W	635 nm			525 g
	LDL2-482X30SW (-WD)	White			6,600 K			
	LDL2-482X30BL (-WD)	Blue			470 nm			
	LDL2-482X30GR (-WD)	Green			525 nm			
	LDL2-506X30RD (-WD)	Red	506×30mm	24 V / 40 W	635 nm			550 g
	LDL2-506X30SW (-WD)	White			6,600 K			
	LDL2-506X30BL (-WD)	Blue			470 nm			
	LDL2-506X30GR (-WD)	Green			525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

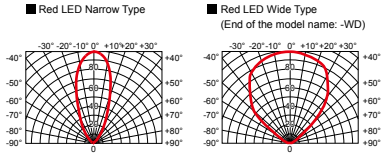
LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Directional characteristics



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.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

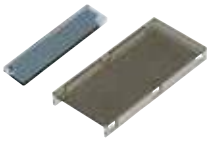
Options

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-LDL2-33X8	LDL2-33X8
DF-LDL2-41X16	LDL2-41X16/LDL2-41X16-WD
DF-LDL2-80X16	LDL2-80X16/LDL2-80X16-WD
DF-LDL2-119X16	LDL2-119X16/LDL2-119X16-WD
DF-LDL2-74X30	LDL2-74X30/LDL2-74X30-WD
DF-LDL2-146X30	LDL2-146X30/LDL2-146X30-WD
DF-LDL2-218X30	LDL2-218X30/LDL2-218X30-WD
DF-LDL2-266X30	LDL2-266X30/LDL2-266X30-WD

▶ P.224



Use with a polarization filter to remove the light's surface reflection.

Polarization plate

Model name	Applicable Light Unit (Common for all colors)
PL-LDL2-33X8-HO	LDL2-33X8
PL-LDL2-33X8-VE	LDL2-33X8
PL-LDL2-41X16	LDL2-41X16/LDL2-41X16-WD
PL-LDL2-41X16-VE	LDL2-41X16/LDL2-41X16-WD
PL-LDL2-80X16	LDL2-80X16/LDL2-80X16-WD
PL-LDL2-80X16-VE	LDL2-80X16/LDL2-80X16-WD
PL-LDL2-119X16	LDL2-119X16/LDL2-119X16-WD
PL-LDL2-119X16-VE	LDL2-119X16/LDL2-119X16-WD
PL-LDL2-74X30	LDL2-74X30/LDL2-74X30-WD
PL-LDL2-74X30-VE	LDL2-74X30/LDL2-74X30-WD
PL-LDL2-146X30	LDL2-146X30/LDL2-146X30-WD
PL-LDL2-146X30-VE	LDL2-146X30/LDL2-146X30-WD
PL-LDL2-218X30	LDL2-218X30/LDL2-218X30-WD
PL-LDL2-218X30-VE	LDL2-218X30/LDL2-218X30-WD
PL-LDL2-266X30	LDL2-266X30/LDL2-266X30-WD
PL-LDL2-266X30-VE	LDL2-266X30/LDL2-266X30-WD

▶ P.225

* There are two kinds of polarization plates: the HO and the VE. For details, refer to P. 225.

Protects the emitting part of the Light Unit.

* Not intended to protect against dust or water.

Protective panel

Model name	Applicable Light Unit (Common for all colors)
CV-LDL2-41X16	LDL2-41X16/LDL2-41X16-WD
CV-LDL2-80X16	LDL2-80X16/LDL2-80X16-WD
CV-LDL2-119X16	LDL2-119X16/LDL2-119X16-WD
CV-LDL2-74X30	LDL2-74X30/LDL2-74X30-WD
CV-LDL2-146X30	LDL2-146X30/LDL2-146X30-WD
CV-LDL2-218X30	LDL2-218X30/LDL2-218X30-WD
CV-LDL2-266X30	LDL2-266X30/LDL2-266X30-WD

▶ P.229

You can freely adjust the illuminating angle when affixing the Light Unit. Various kinds of illumination are possible depending on the affixing method, such as illumination from two or four directions.

Bracket

Model name	Note
BK-LDL2	Angle adjustment bracket common for the LDL2 series (x2)

▶ P.227

You can freely adjust the illuminating angle when affixing the Light Unit. Various kinds of illumination are possible depending on the affixing method, such as illumination from two or four directions.

Bracket

Model name	Note
BK-LDQ2-33X8	Bracket that can install four of the LDL2-33X8

▶ P.227

You can freely adjust the illuminating angle when affixing the Light Unit. Various kinds of illumination are possible depending on the affixing method, such as illumination from two or four directions.

Bracket

Model name	Note
BK-LDQ2-41X16	Bracket that can install four of the LDL2-41X16
BK-LDQ2-80X16	Bracket that can install four of the LDL2-80X16
BK-LDQ2-119X16	Bracket that can install four of the LDL2-119X16
BK-LDQ2-74X30	Bracket that can install four of the LDL2-74X30
BK-LDQ2-146X30	Bracket that can install four of the LDL2-146X30
BK-LDQ2-218X30	Bracket that can install four of the LDL2-218X30
BK-LDQ2-266X30	Bracket that can install four of the LDL2-266X30

▶ P.227

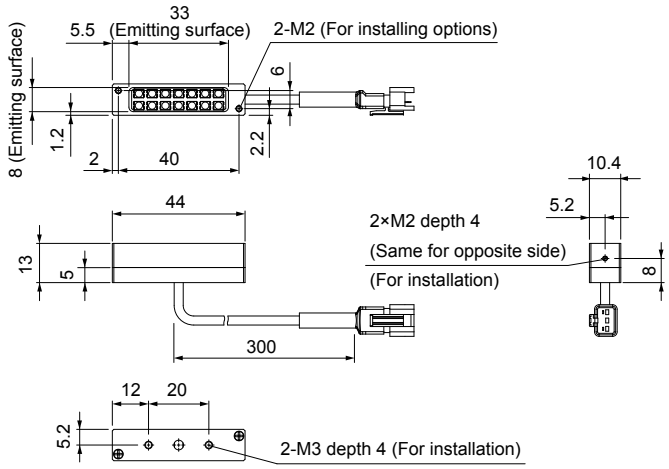
You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

LDL2 series

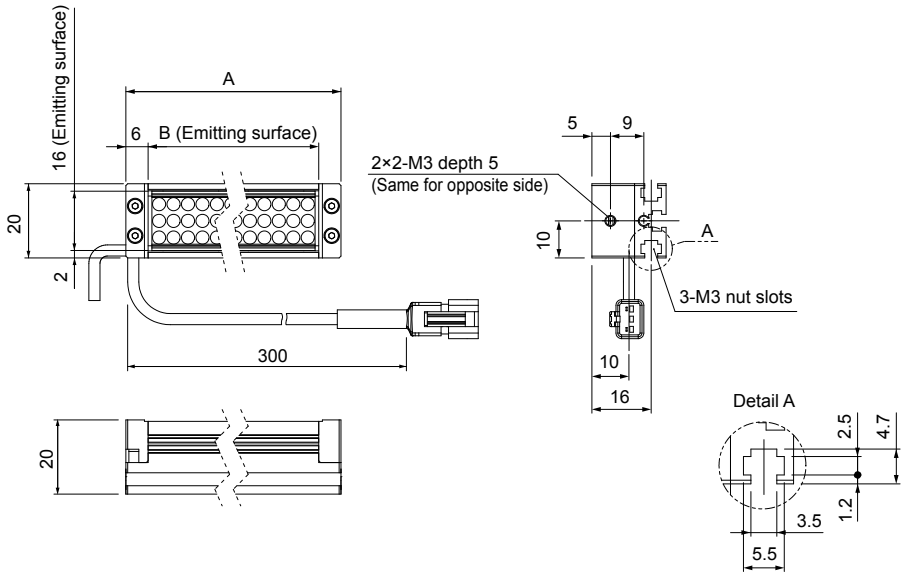
Refer to our website for product details.
CCS LDL2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Dimensions (mm)

For the LDL2-33X8RD/SW/BL/GR/IR850



For the LDL2-nnnX16RD/SW/BL/GR nnn = B (Emitting surface)



Standard product

Model name	A	B
LDL2-41X16RD/SW/BL/GR	53	41
LDL2-80X16RD/SW/BL/GR	92	80
LDL2-119X16RD/SW/BL/GR	131	119

Special order

Model name	A	B
LDL2-158X16RD/SW/BL/GR	170	158
LDL2-197X16RD/SW/BL/GR	209	197
LDL2-236X16RD/SW/BL/GR	248	236
LDL2-275X16RD/SW/BL/GR	287	275
LDL2-314X16RD/SW/BL/GR	326	314
LDL2-353X16RD/SW/BL/GR	365	353
LDL2-392X16RD/SW/BL/GR	404	392
LDL2-431X16RD/SW/BL/GR	443	431
LDL2-470X16RD/SW/BL/GR	482	470
LDL2-509X16RD/SW/BL/GR	521	509

The Wide Type (-WD) is the same size.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

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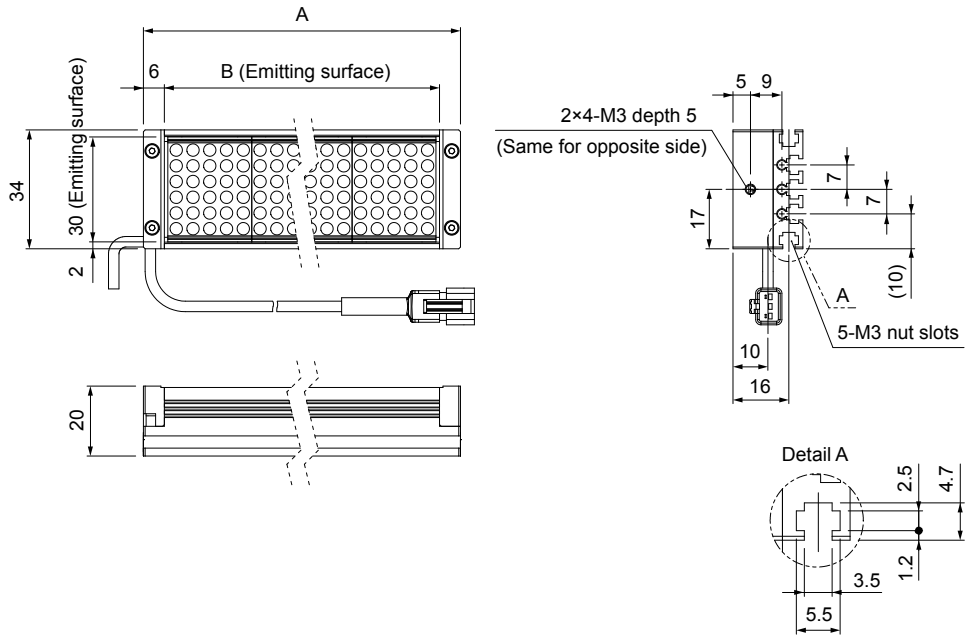
For the LDL2-nnnX30RD/SW/BL/GR nnn = B (Emitting surface)



Standard product

Model name	A	B
LDL2-74X30RD/SW/BL/GR	86	74
LDL2-146X30RD/SW/BL/GR	158	146
LDL2-218X30RD/SW/BL/GR	230	218
LDL2-266X30RD/SW/BL/GR	278	266

Special order

Model name	A	B
LDL2-26X30RD/SW/BL/GR	38	26
LDL2-50X30RD/SW/BL/GR	62	50
LDL2-98X30RD/SW/BL/GR	110	98
LDL2-122X30RD/SW/BL/GR	134	122
LDL2-170X30RD/SW/BL/GR	182	170
LDL2-194X30RD/SW/BL/GR	206	194
LDL2-242X30RD/SW/BL/GR	254	242
LDL2-290X30RD/SW/BL/GR	302	290
LDL2-314X30RD/SW/BL/GR	326	314
LDL2-338X30RD/SW/BL/GR	350	338
LDL2-362X30RD/SW/BL/GR	374	362
LDL2-386X30RD/SW/BL/GR	398	386
LDL2-410X30RD/SW/BL/GR	422	410
LDL2-434X30RD/SW/BL/GR	446	434
LDL2-458X30RD/SW/BL/GR	470	458
LDL2-482X30RD/SW/BL/GR	494	482
LDL2-506X30RD/SW/BL/GR	518	506

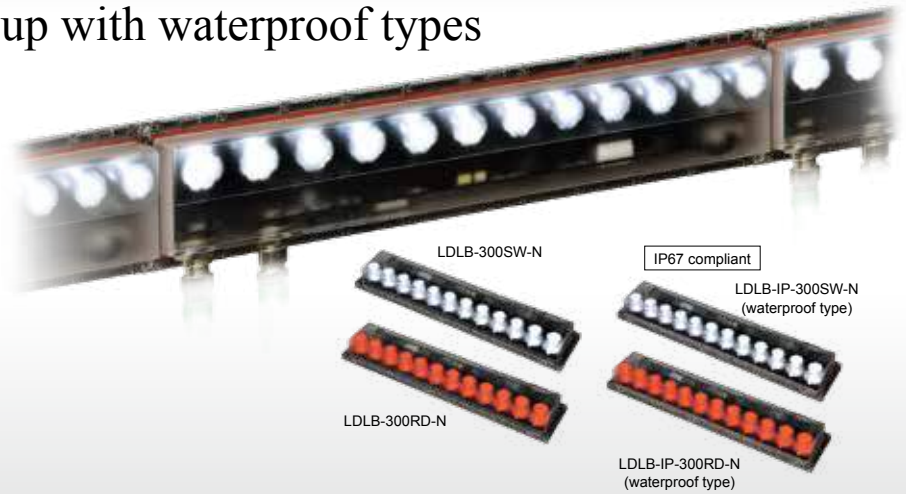
The Wide Type (-WD) is the same size.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Bar Lights
LDLB series

Refer to our website for product details.
CCS LDLB ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Bar Light with built-in Controller and lineup with waterproof types



Applications Light source for robotic picking, visual inspection for beverage packages, mixed models inspection for various parts, inspection for missing mounted parts, and visual inspection for large workpieces, etc.

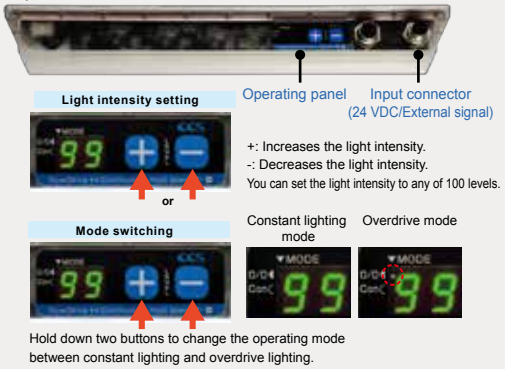
Overdrive can illuminate even 3 m away

Just one Light Unit provides both constant lighting and overdrive lighting.

* Comparison with light intensity of 100% in constant lighting mode

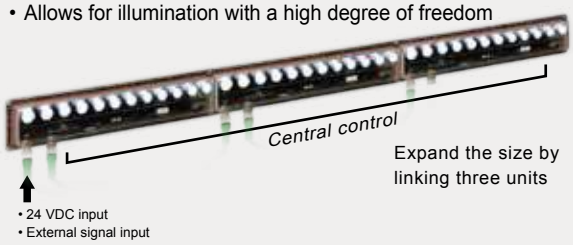
Built-in Controller, 24 VDC input specifications

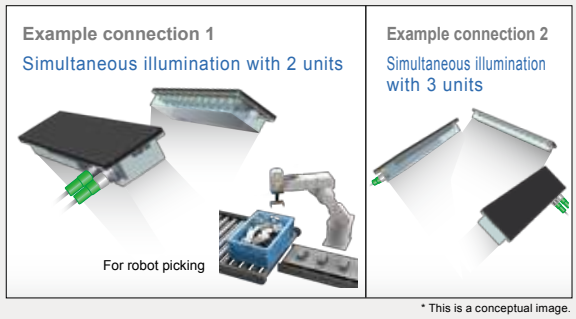
The Controller is built-in, so you don't need a Control Unit for light control. You can set intensity values and switch modes by panel operations.



Can be connected in a daisy-chain

- Connect up to three units
- Centrally control the chain externally
- Allows for illumination with a high degree of freedom



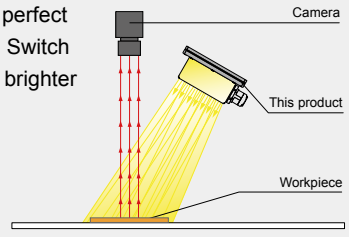


* This is a conceptual image.

Example configuration

Bar Light with built-in Controller. Allows for long-distance illumination perfect for large workpieces. Switch to overdrive for even brighter illumination.

LDLB series



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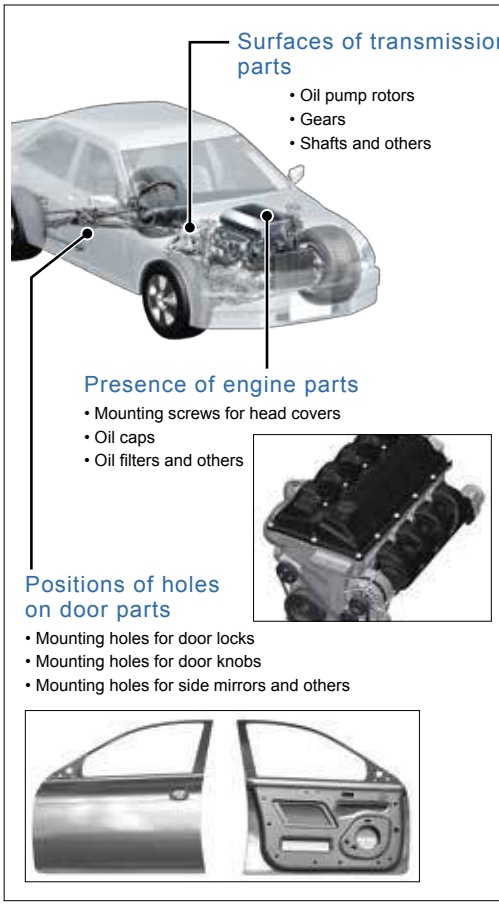
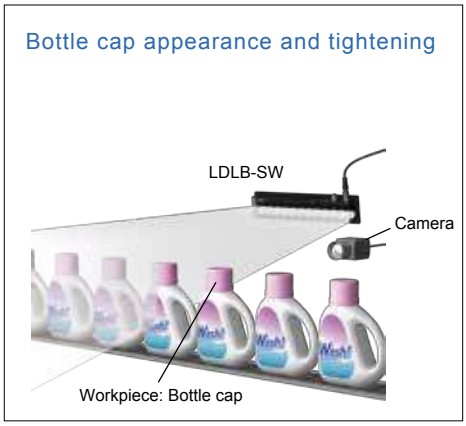
Applications

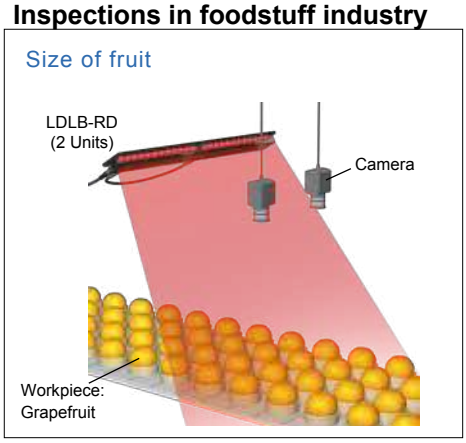
Inspections in automotive industry



Inspections in packaging industry



Inspections in foodstuff industry



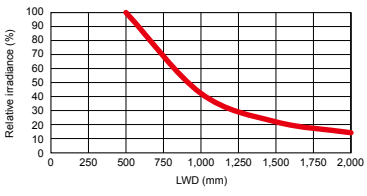
Data: Relative irradiance graph/Uniformity (Representative example)

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

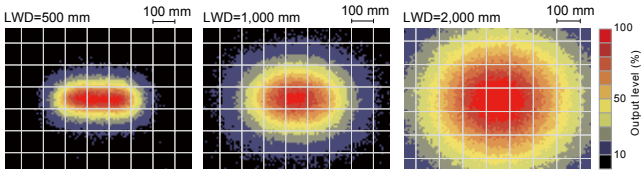
LDLB-300RD-N (Red)

Relative irradiance graph (LWD Characteristics)*2

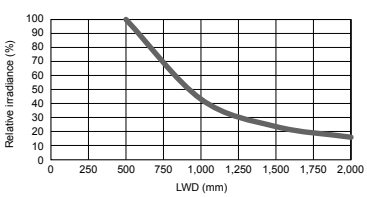
*1: Irradiance on the optical axis
*2: Illuminating distance from the Light Unit to the workpiece

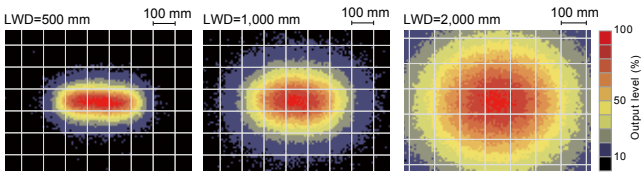


Uniformity (Relative irradiance)



LDLB-300SW-N (White)





LDLB series

Refer to our website for product details.

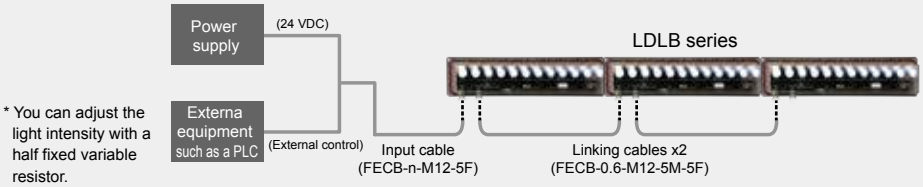
CCS LDLB ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

System configuration example

Example: Daisy-chaining three Light Units

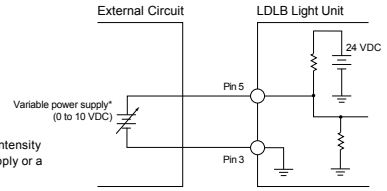


* You can adjust the light intensity with a half fixed variable resistor.

Connection example

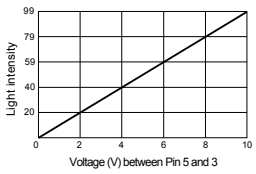
* Refer to the Instruction Guide for details.

External control of light intensity



* You can adjust the light intensity with a variable power supply or a variable resistor.

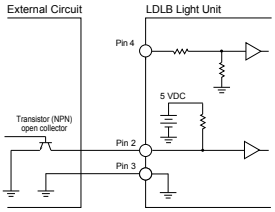
Setting the Light Intensity with an Analog Input



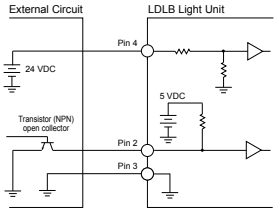
ON/OFF Inputs

With these Light Units, you can use a sinking input (NPN) or a sourcing input (PNP).

Pin 4 Open



Pin 4 High Voltage



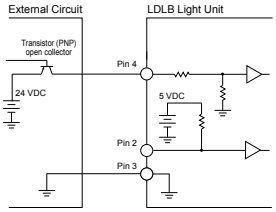
Logic Table

Logic switching	Pin 4	Open		High voltage	
Signal input	Pin 2 (NPN)	Open	Low voltage	Open	Low voltage
Operating mode	Constant Lighting Mode	Lit.	Not lit.	Not lit.	Lit.
	Overdrive Mode	Not lit.	Lit.	Lit.	Not lit.

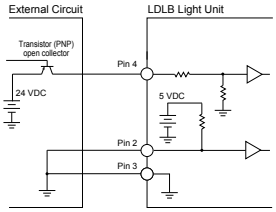
Refer to the following table for the low and high voltages.

Pin	Signal input status	Range
Pin 2 (NPN)	Low voltage	0 to 1.1 VDC
Pin 4	High voltage	20.7 to 26.4 VDC

Pin 2 Open



Pin 2 Low Voltage



Logic Table

Logic switching	Pin 2	Open		Low voltage	
Signal input	Pin 4 (PNP)	Open	High voltage	Open	High voltage
Operating mode	Constant Lighting Mode	Lit.	Not lit.	Not lit.	Lit.
	Overdrive Mode	Not lit.	Lit.	Lit.	Not lit.

Refer to the following table for the low and high voltages.

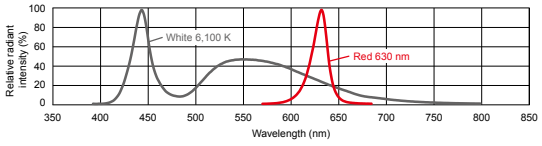
Pin	Signal input status	Range
Pin 2	Low voltage	0 to 1.1 VDC
Pin 4 (PNP)	High voltage	20.7 to 26.4 VDC

Lineup

Model name	Protective structure	LED color	Power consumption	Input voltage (rated)	Input voltage (range)	Peak wavelength/ correlated color temperature	Input/output connectors	Weight
LDLB-300RD-N	—	Red	24 W	24 VDC	22.8 to 26.4 VDC	630 nm	M12 connector	500 g
LDLB-300SW-N		White	31 W			6,100 K		
LDLB-IP-300RD-N	IP67 compliant (JIS C 0920)	Red	24 W			630 nm		
LDLB-IP-300SW-N		White	31 W			6,100 K		

Common specifications

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Be sure to read the “Instruction Guide” included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials.

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

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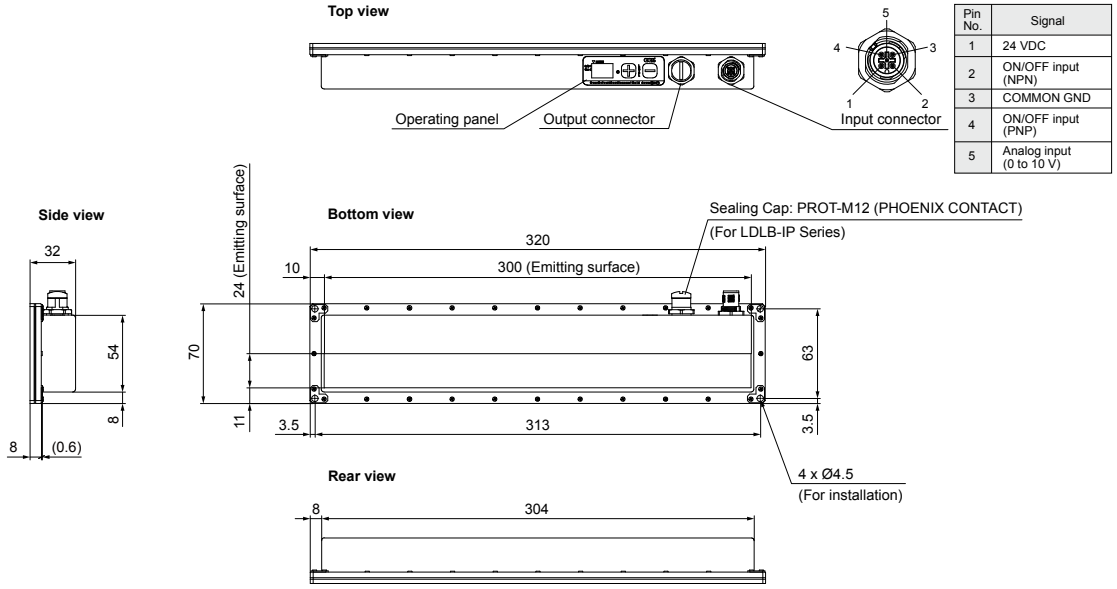
http://www.ccs-grp.com/dl/

Dimensions (mm)



Pin No.	Signal
1	24 VDC
2	ON/OFF input (NPN)
3	COMMON GND
4	ON/OFF input (PNP)
5	Analog input (0 to 10 V)

Optional cables

Input cable

Model name	Length	Weight
FECB-1-M12-5F	1 m	55 g
FECB-2-M12-5F	2 m	90 g
FECB-3-M12-5F	3 m	130 g
FECB-5-M12-5F	5 m	210 g

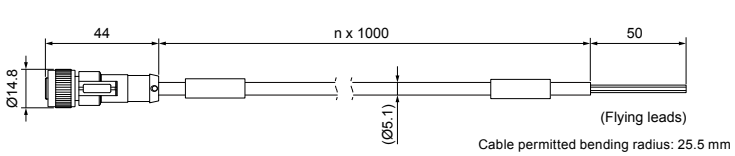
This cable supplies power to the Light Unit and inputs signals for light intensity control or to turn the light ON and OFF.

Link cable

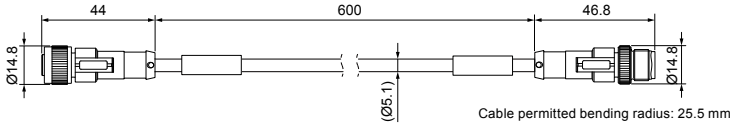
Model name	Length	Weight
FECB-0.6-M12-5M-5F	0.6 m	50 g

This cable is used to daisy-chain Light Units.

(mm)



Cable permitted bending radius: 25.5 mm



Cable permitted bending radius: 25.5 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Maximum length of optional cables

Number of Light Units connected in Constant Lighting Mode		
1	2	3
10 m	7 m	4.5 m

Number of Light Units connected in Overdrive Mode		
1	2	3
3 m	1 m	Cannot be used.

Number of Light Units	1	The table gives the maximum length of the Input Cable.
	2 or 3	The table gives the maximum total length of the Input Cable and Link Cables.

The wire diameter is AWG 22 for the optional cables. If the maximum length given above is exceeded, shorten the Input Cable or contact CCS. For details, refer to the "Instruction Guide".

Cautionary information regarding waterproofing

- Handle the Light Unit and connectors with care. Do not deform or damage the connectors.
- Connect the cables correctly to the Light Units.
- Connect a Sealing Cap to any output connectors to which a cable is not connected to maintain water resistance. The Sealing Cap is connected to the output connector when the Light Unit is shipped.
- If the Light Unit is not used for a long period of time with the cable disconnected, attach the Cap to the connector.
- After cleaning manufacturing lines, be sure to wipe away any moisture remaining on the emitting surface. Imaging can be affected by moisture on the emitting surface.
- Use water to wash away any cleaning agent adhered to this product.
- Use water to wash away any oils or chemicals adhered to this product.

Note

"IP67" indicates the level of protection against foreign material entering electrical instruments

The 1st numeral "6" indicates the following level of protection:

- No dust inside the instrument. (dustproof)

The 2nd numeral "7" indicates the following level of protection:

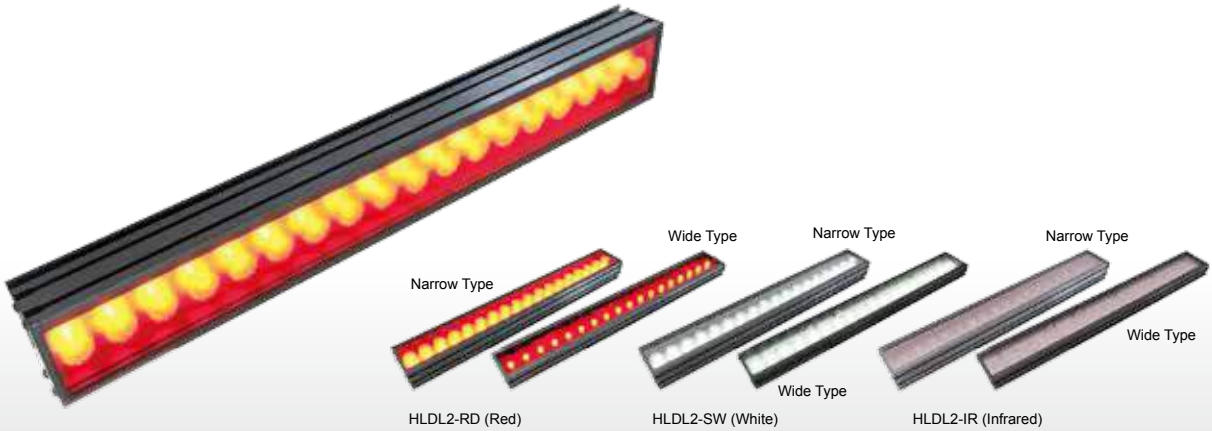
- No damage when submerged in water at the rated pressure for the rated time. (watertight type)
- Can be submerged in water to a depth of 1 m (for instruments with a height of less than 850 mm) for 30 minutes.

You can inquire using our website.
Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here.
http://www.ccs-grp.com/contact/

Bar Lights
HLDL2 series

Refer to our website for product details.
CCS HLDL2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides direct light perfect for large workpieces



Applications Light source for robotic picking, inspection for parts identification, inspection for missing parts, visual inspection for large workpieces, and measuring stamp dimensions for press products, etc.

Bar Lights that are perfect for large workpieces

By using lenses, we provide the narrow type, which allows for convergent illumination, and the wide type, which uses diffused illumination over a wide area.

Emitting surface length

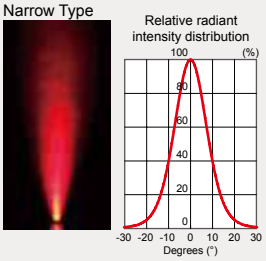
From 150 mm to 1,200 mm Can be made in units of 150 mm

LED color

For emitted LED color, we have a lineup consisting of:
Red, White, and Infrared
We support a wide range, from visible light to infrared, depending on the contents of the inspection.

Selectable directional characteristics

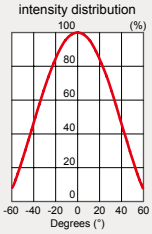
Narrow Type



Relative radiant intensity distribution

Wide Type

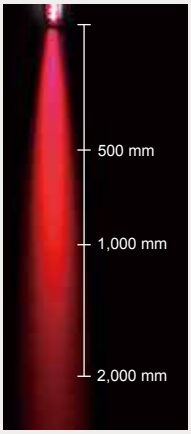
Relative radiant intensity distribution



Allows for long-distance illumination for 2,000 mm

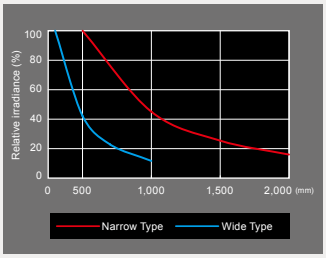
The narrow type, which allows for long-distance illumination, can illuminate even 2,000 mm away.
We also provide the wide type, which uses diffused illumination over a wide area.

Image of the illumination of the HLDL2-450X45RD-DF-N (Narrow type)

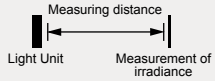


The illumination is a conceptual image.

Graph of relative irradiance by type (Red)



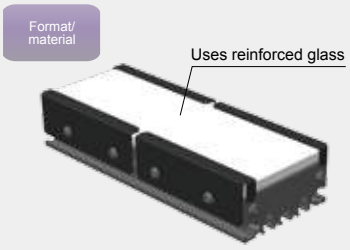
Narrow Type: HLDL2-450X45RD-DF-N
Wide Type: HLDL2-450X45RD-DF-W



Measurement conditions: Intensity 100%

Custom orders

Please contact your CCS sales representative.
E.g.: Improved protection of emitting surface



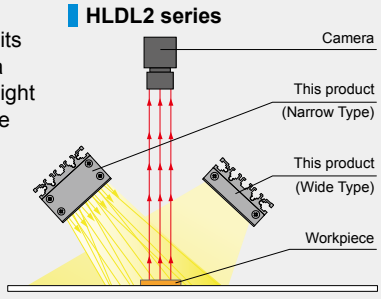
Customizable items

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

Example configuration

Supports various applications with its perfect size. It's a high output Bar Light that can illuminate even 2,000 mm away.

HLDL2 series



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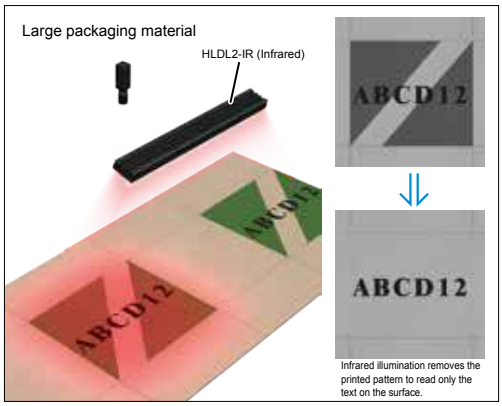
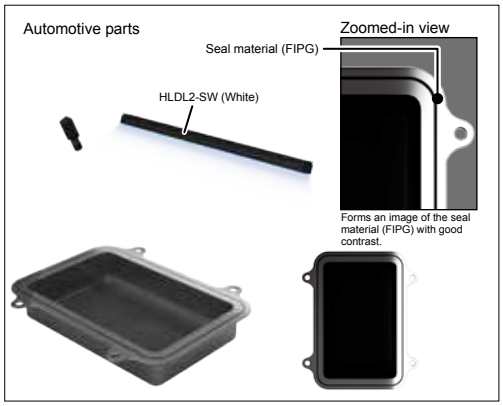
Applications

Picking work performed by robots

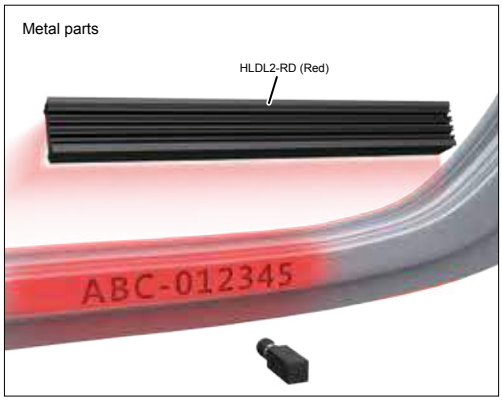
Reading text on cardboard



Inspection detecting the application of seal material (FIPG)



Reading vehicle model numbers



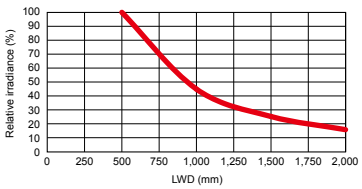
Data: Relative irradiance graph/Uniformity (Representative example)

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

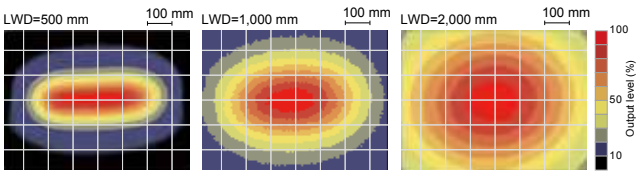
HLDL2-450X45RD-DF-N (Narrow Type)

Relative irradiance graph (LWD Characteristics)*2

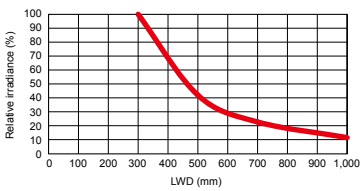
*1: Irradiation strength on the optical axis
*2: Illuminating distance from the Light Unit to the workpiece

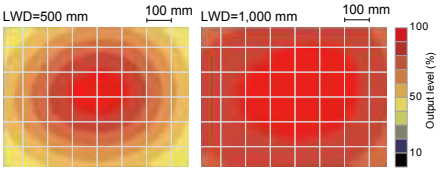


Uniformity (Relative irradiance)



HLDL2-450X45RD-DF-W (Wide Type)





HLDL2 series

Refer to our website for product details.

CCS HLDL2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup

* End of the model name: -N: Narrow type, -W: Wide type

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Connector	Recommended Control Units	Weight
HLDL2-150X45RD-DF-N	Red	24 V / 14 W	640 nm	SM Connector	PD3 PSB	390 g
HLDL2-150X45RD-DF-W						300 g
HLDL2-150X45SW-DF-N	White	24 V / 16 W	5,600 K			390 g
HLDL2-150X45SW-DF-W						300 g
HLDL2-150X45IR-DF-N	Infrared	24 V / 12 W	860 nm			390 g
HLDL2-150X45IR-DF-W						300 g
HLDL2-300X45RD-DF-N	Red	24 V / 28 W	640 nm			770 g
HLDL2-300X45RD-DF-W						590 g
HLDL2-300X45SW-DF-N	White	24 V / 31 W	5,600 K		PD3	770 g
HLDL2-300X45SW-DF-W						590 g
HLDL2-300X45IR-DF-N	Infrared	24 V / 24 W	860 nm		PD3 PSB	770 g
HLDL2-300X45IR-DF-W						590 g
HLDL2-450X45RD-DF-N	Red	24 V / 42 W	640 nm			1,160 g
HLDL2-450X45RD-DF-W						880 g
HLDL2-450X45SW-DF-N	White	24 V / 46 W	5,600 K		PD3	1,160 g
HLDL2-450X45SW-DF-W						880 g
HLDL2-450X45IR-DF-N	Infrared	24 V / 36 W	860 nm			1,160 g
HLDL2-450X45IR-DF-W						880 g
HLDL2-600X45RD-DF-N	Red	24 V / 56 W	640 nm	EL Connector		1,540 g
HLDL2-600X45RD-DF-W						1,170 g
HLDL2-600X45SW-DF-N	White	24 V / 61 W	5,600 K			1,540 g
HLDL2-600X45SW-DF-W						1,170 g
HLDL2-600X45IR-DF-N	Infrared	24 V / 48 W	860 nm			1,540 g
HLDL2-600X45IR-DF-W						1,170 g
HLDL2-750X45RD-DF-N	Red	24 V / 70 W	640 nm			1,930 g
HLDL2-750X45RD-DF-W						1,460 g
HLDL2-750X45SW-DF-N	White	24 V / 76 W	5,600 K		PD3 PSB3-30024	1,930 g
HLDL2-750X45SW-DF-W						1,460 g
HLDL2-750X45IR-DF-N	Infrared	24 V / 60 W	860 nm			1,930 g
HLDL2-750X45IR-DF-W						1,460 g
HLDL2-900X45RD-DF-N	Red	24 V / 84 W	640 nm			2,310 g
HLDL2-900X45RD-DF-W						1,750 g
HLDL2-900X45SW-DF-N	White	24 V / 91 W	5,600 K			2,310 g
HLDL2-900X45SW-DF-W						1,750 g
HLDL2-900X45IR-DF-N	Infrared	24 V / 72 W	860 nm			2,310 g
HLDL2-900X45IR-DF-W						1,750 g
HLDL2-1050X45RD-DF-N	Red	24 V / 98 W	640 nm			2,700 g
HLDL2-1050X45RD-DF-W					PSB3-30024	2,040 g
HLDL2-1050X45SW-DF-N	White	24 V / 106 W	5,600 K			2,700 g
HLDL2-1050X45SW-DF-W						2,040 g
HLDL2-1050X45IR-DF-N	Infrared	24 V / 84 W	860 nm		PD3 PSB3-30024	2,700 g
HLDL2-1050X45IR-DF-W						2,040 g
HLDL2-1200X45RD-DF-N	Red	24 V / 111 W	640 nm			3,080 g
HLDL2-1200X45RD-DF-W						2,330 g
HLDL2-1200X45SW-DF-N	White	24 V / 121 W	5,600 K		PSB3-30024	3,080 g
HLDL2-1200X45SW-DF-W						2,330 g
HLDL2-1200X45IR-DF-N	Infrared	24 V / 96 W	860 nm			3,080 g
HLDL2-1200X45IR-DF-W						2,330 g

* Please inquire if you would like to use in combination with a Strobe Control Unit (overdrive type).

Extension Cables ▶ P.230
Control Unit Selection Guide ▶ P.185
List of Control Unit Specifications ▶ P.187

We have various materials.

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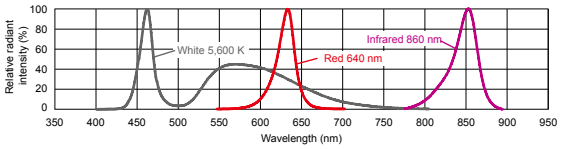
Common specifications

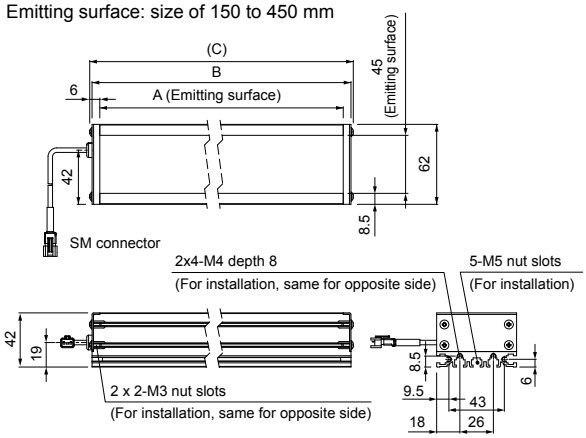
Light spectrum	 If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

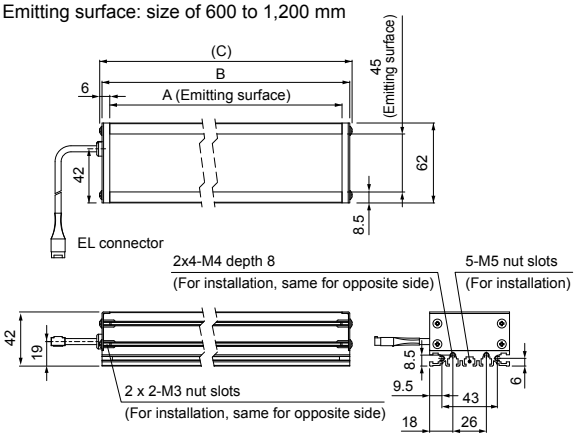
Dimensions (mm)

Narrow Type

Emitting surface: size of 150 to 450 mm

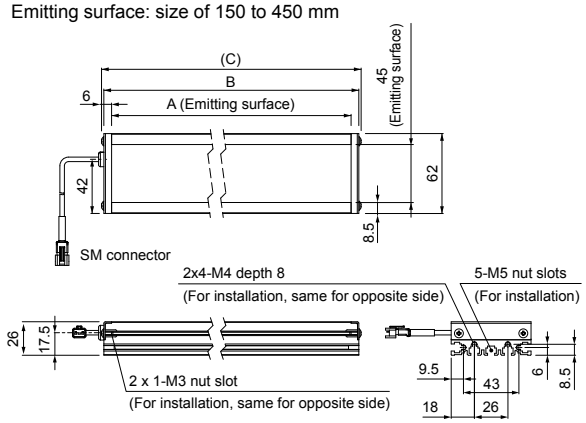


Emitting surface: size of 600 to 1,200 mm

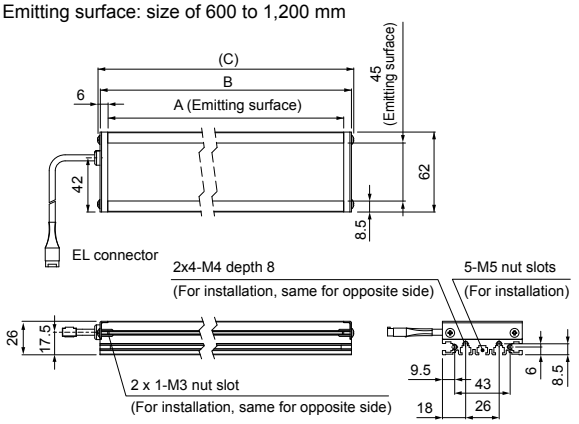


Wide Type

Emitting surface: size of 150 to 450 mm



Emitting surface: size of 600 to 1,200 mm



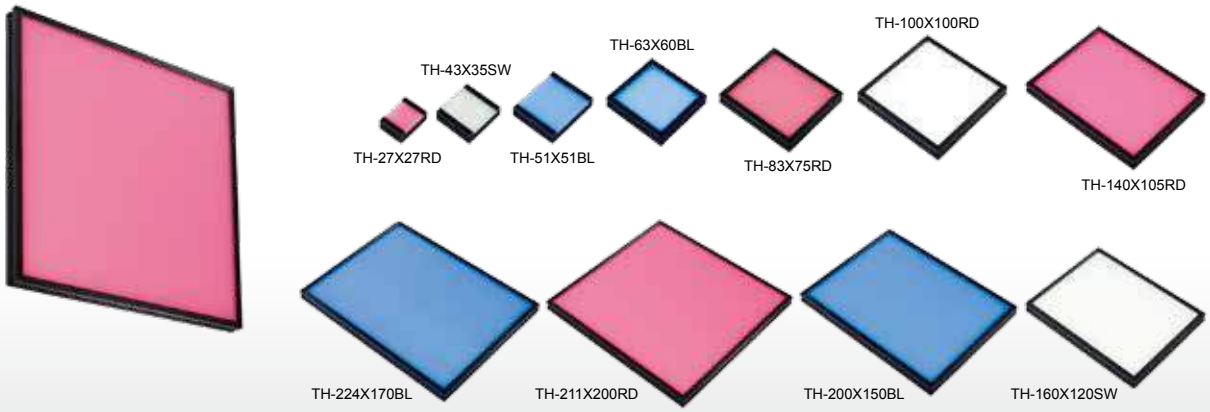
Model name (Narrow Type)	A	B	C	Model name (Wide Type)	A	B	C
HLDL2-150X45RD-DF-N / SW-DF-N / IR-DF-N	150	162	165.6	HLDL2-150X45RD-DF-W / SW-DF-W / IR-DF-W	150	162	165.6
HLDL2-300X45RD-DF-N / SW-DF-N / IR-DF-N	300	312	315.6	HLDL2-300X45RD-DF-W / SW-DF-W / IR-DF-W	300	312	315.6
HLDL2-450X45RD-DF-N / SW-DF-N / IR-DF-N	450	462	465.6	HLDL2-450X45RD-DF-W / SW-DF-W / IR-DF-W	450	462	465.6
HLDL2-600X45RD-DF-N / SW-DF-N / IR-DF-N	600	612	615.6	HLDL2-600X45RD-DF-W / SW-DF-W / IR-DF-W	600	612	615.6
HLDL2-750X45RD-DF-N / SW-DF-N / IR-DF-N	750	762	765.6	HLDL2-750X45RD-DF-W / SW-DF-W / IR-DF-W	750	762	765.6
HLDL2-900X45RD-DF-N / SW-DF-N / IR-DF-N	900	912	915.6	HLDL2-900X45RD-DF-W / SW-DF-W / IR-DF-W	900	912	915.6
HLDL2-1050X45RD-DF-N / SW-DF-N / IR-DF-N	1,050	1,062	1,065.6	HLDL2-1050X45RD-DF-W / SW-DF-W / IR-DF-W	1,050	1,062	1,065.6
HLDL2-1200X45RD-DF-N / SW-DF-N / IR-DF-N	1,200	1,212	1,215.6	HLDL2-1200X45RD-DF-W / SW-DF-W / IR-DF-W	1,200	1,212	1,215.6

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Flat Lights
TH series

Refer to our website for product details.
CCS TH ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Diffused illumination from a flat emitting surface



Applications Dimension measuring, visual inspection, foreign material inspections, liquid level inspection, pinhole inspection, and burr inspection for metal parts, etc.

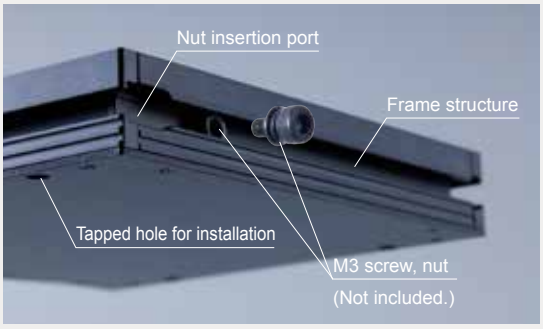
Rich variety of sizes with 11 types

Rich variety of sizes

The lineup consists of 33 models, with 11 sizes of emitting surfaces from 27 x 27 mm to 211 x 200 mm in each color.

Install freely to match your environment

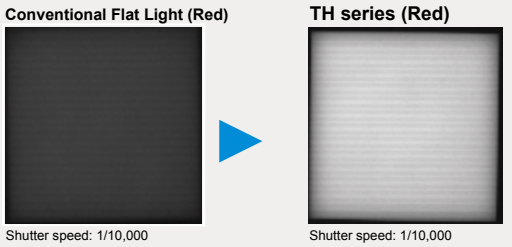
Uses installation method by frame structure. Tapped holes for installation are included not only on the unit side but also on the bottom.



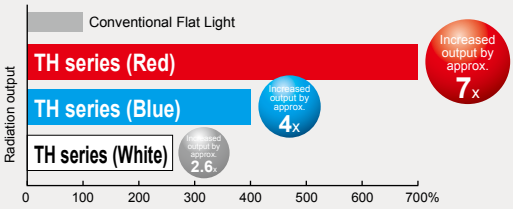
Flat Lights with high output

This is a Flat Light with surface-mounted LEDs mounted densely. It illuminates diffused light evenly at high output.

Achieved significantly higher output than the conventional product



■ Output comparison with the conventional product

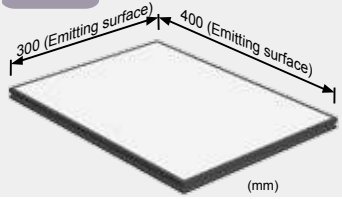


* The data included is for reference only and does not guarantee the quality of this product.

Custom orders

Please contact your CCS sales representative.
E.g.: Changed the shape as a replacement for a large fluorescent light

Format — Create a Light Unit with a large size



Customizable items

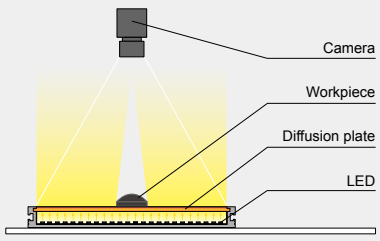
- External/internal diameter
- Wavelength/ color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

Etc.

Example configuration

Achieved high output with a flat shape. Light from the LEDs is transmitted through the diffusion panel and illuminated on the rear of the workpiece.

TH-140X105



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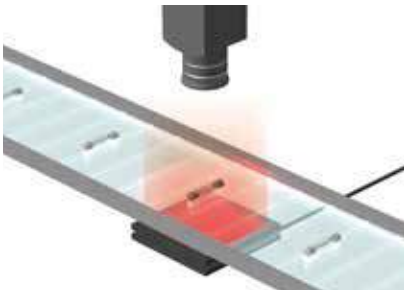
Imaging example : Imaging of an element of a glass tube fuse



Description	Visual inspection
Workpiece	Glass tube fuse
Before the proposal	LED Bar Light
After the proposal	TH-63X60RD
Result	Emphasized the silhouette

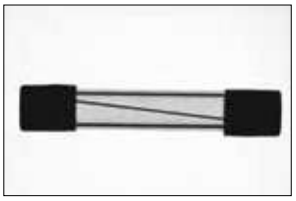
■ Workpiece image

Glass tube fuse

■ LED Bar Light

Due to reflection from the glass surface, it is difficult to form an image of the element inside the fuse.

■ TH-63X60RD



Reflection from the glass surface is reduced making it possible to form an image of the element.

Imaging example : Imaging of text engraved on a glass bottle

Description	Character recognition
Workpiece	Glass bottle
Before the proposal	LED Bar Light
After the proposal	TH-83X75BL
Result	Extracts only the engraved text

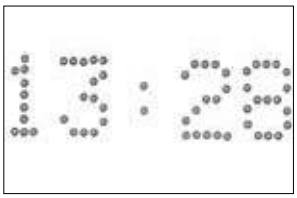
■ Workpiece image

Glass bottle

■ LED Bar Light

Text cannot be recognized and imaging is difficult.

■ TH-83X75BL



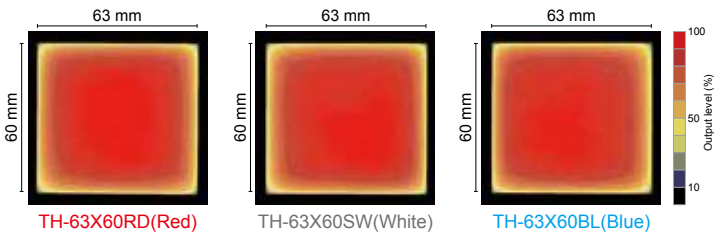
Contrast is good and the text can be clearly imaged.

Data : Uniformity (Representative example)

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

TH-63X60

Uniformity (Relative radiance)



TH-63X60RD(Red) TH-63X60SW(White) TH-63X60BL(Blue)

TH series

Refer to our website for product details.

CCS TH ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

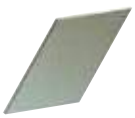
Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
TH-27X27RD	Red	24 V / 1.9 W	635 nm	Light control film Bracket	PD3 CC-ST-1024 PSB POD*	30 g
TH-27X27SW	White	24 V / 2.2 W	6,600 K			
TH-27X27BL	Blue		470 nm			
TH-43X35RD	Red	24 V / 3.8 W	635 nm			40 g
TH-43X35SW	White	24 V / 3.0 W	6,600 K			
TH-43X35BL	Blue		470 nm			
TH-51X51RD	Red	24 V / 5.1 W	635 nm			60 g
TH-51X51SW	White	24 V / 5.2 W	6,600 K			
TH-51X51BL	Blue		470 nm			
TH-63X60RD	Red	24 V / 8.1 W	635 nm			100 g
TH-63X60SW	White	24 V / 7.9 W	6,600 K			
TH-63X60BL	Blue		470 nm			
TH-83X75RD	Red	24 V / 11 W	635 nm			140 g
TH-83X75SW	White	24 V / 12 W	6,600 K			
TH-83X75BL	Blue		470 nm			
TH-100X100RD	Red	24 V / 19 W	635 nm			200 g
TH-100X100SW	White	24 V / 18 W	6,600 K		PD3	
TH-100X100BL	Blue		470 nm		PSB POD*	
TH-140X105RD	Red	24 V / 25 W	635 nm			260 g
TH-140X105SW	White	24 V / 24 W	6,600 K			
TH-140X105BL	Blue		470 nm			
TH-160X120RD	Red	24 V / 28 W	635 nm			310 g
TH-160X120SW	White	24 V / 30 W	6,600 K			
TH-160X120BL	Blue		470 nm			
TH-200X150RD	Red	24 V / 38 W	635 nm			440 g
TH-200X150SW	White	24 V / 37 W	6,600 K			
TH-200X150BL	Blue		470 nm			
TH-224X170RD	Red	24 V / 41 W	635 nm			540 g
TH-224X170SW	White		6,600 K		PD3 POD*	
TH-224X170BL	Blue		470 nm			
TH-211X200RD	Red	24 V / 45 W	635 nm			580 g
TH-211X200SW	White		6,600 K			
TH-211X200BL	Blue		470 nm			

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* 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

Options



This is a plastic film which lines up fine louvers with an extremely narrow gap between them.
It reduces light diffusion in a certain direction and increases parallelism.

Light control film

Model name	Applicable Light Unit (Common for all colors)
LC-TH-27X27-HO	TH-27X27
LC-TH-27X27-VE	
LC-TH-43X35-HO	TH-43X35
LC-TH-43X35-VE	
LC-TH-51X51-HO	TH-51X51
LC-TH-51X51-VE	
LC-TH-63X60-HO	TH-63X60
LC-TH-63X60-VE	

Model name	Applicable Light Unit (Common for all colors)
LC-TH-83X75-HO	TH-83X75
LC-TH-83X75-VE	
LC-TH-100X100-HO	TH-100X100
LC-TH-100X100-VE	
LC-TH-140X105-HO	TH-140X105
LC-TH-140X105-VE	
LC-TH-160X120-HO	TH-160X120
LC-TH-160X120-VE	

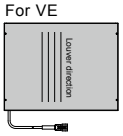
Model name	Applicable Light Unit (Common for all colors)
LC-TH-200X150-HO	TH-200X150
LC-TH-200X150-VE	
LC-TH-224X170-HO	TH-224X170
LC-TH-224X170-VE	
LC-TH-211X200-HO	TH-211X200
LC-TH-211X200-VE	

▶ P.226

* There are two types of the light control film: the HO and the VE. For details, refer to P. 226.

For HO

For VE



This is a dedicated bracket for affixing the TH series Light Units. The TH series can be affixed in four points.

Bracket

Model name	Applicable Light Unit (Common for all colors)
BK-TH-LE12	Installation bracket common for each TH series (x4)

▶ P.227

We have various materials.

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

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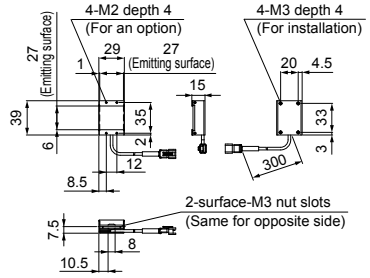
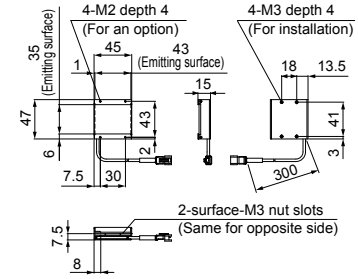
Dimensions (mm)

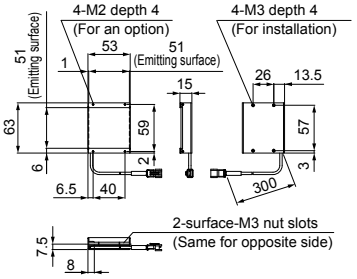
TH-27X27RD/SW/BL



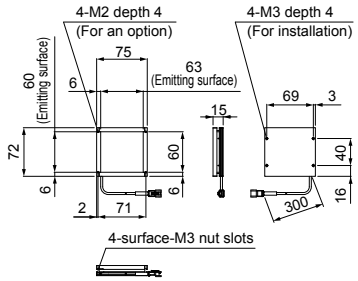
TH-43X35RD/SW/BL



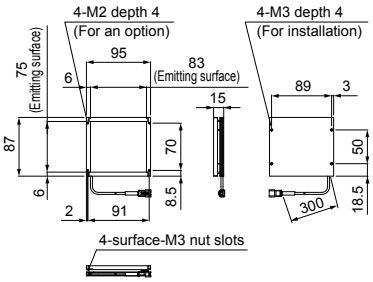
TH-51X51RD/SW/BL



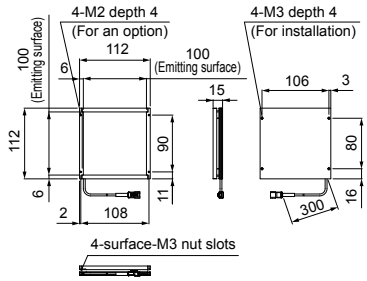
TH-63X60RD/SW/BL



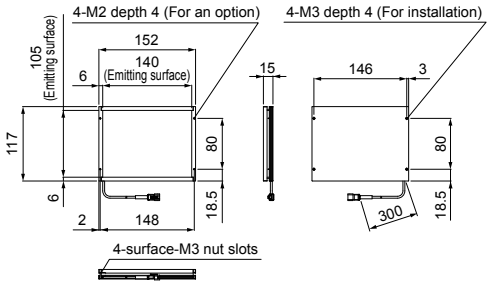
TH-83X75RD/SW/BL



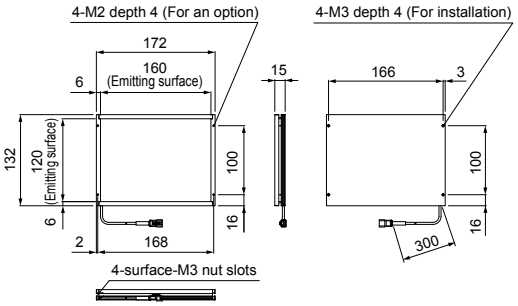
TH-100X100RD/SW/BL



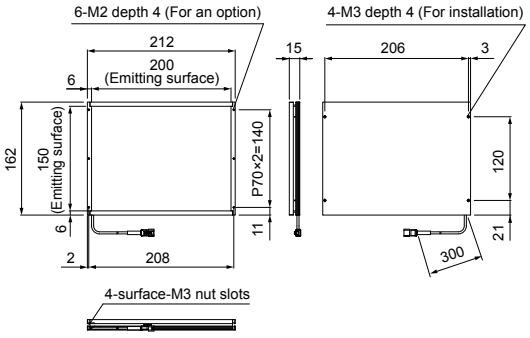
TH-140X105RD/SW/BL



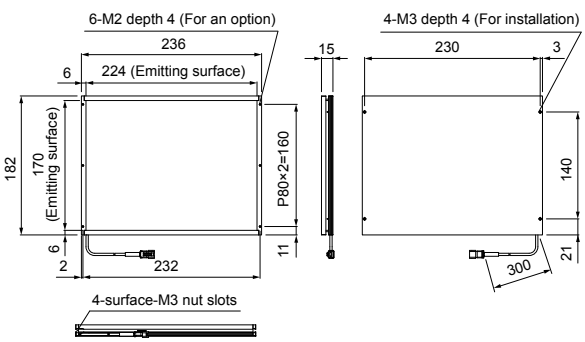
TH-160X120RD/SW/BL



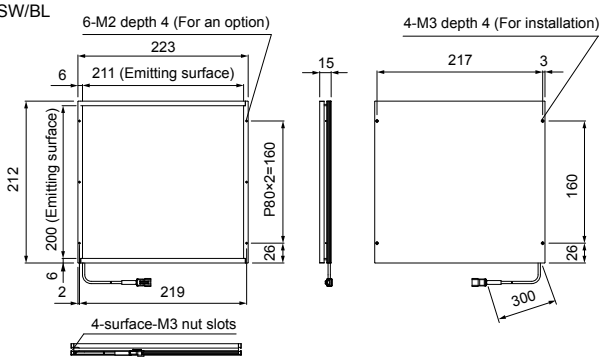
TH-200X150RD/SW/BL



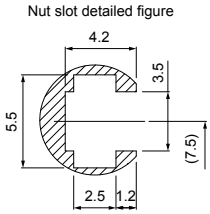
TH-224X170RD/SW/BL



TH-211X200RD/SW/BL



Nut slot detailed figure

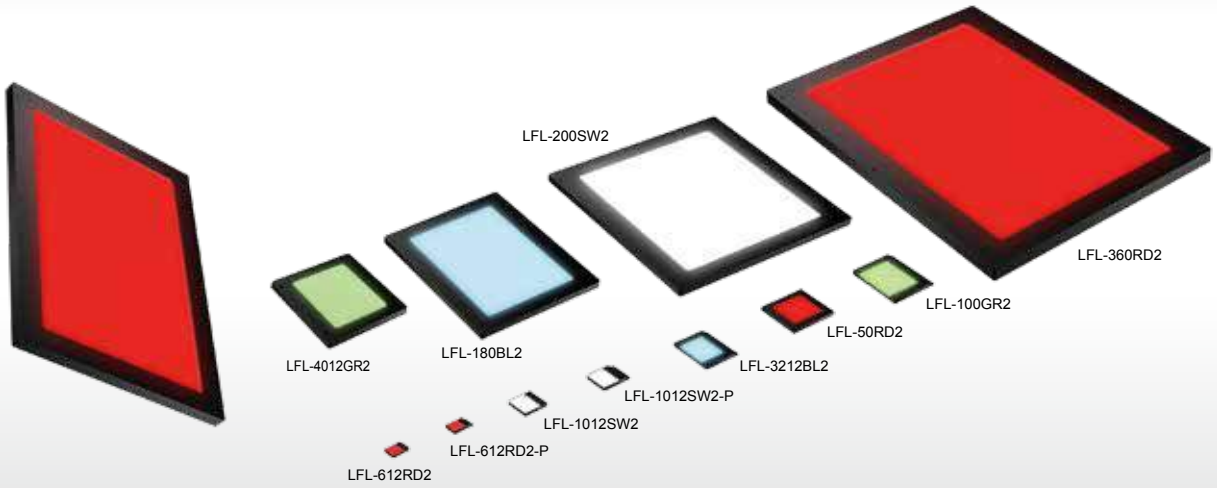


You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Flat Lights
LFL series

Refer to our website for product details.
CCS LFL ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Diffused illumination from a flat emitting surface



Applications Dimension measuring, visual inspection, foreign material inspections, liquid level inspection, burr inspection for metal parts, and inspection for tears / stains on packaging, etc.

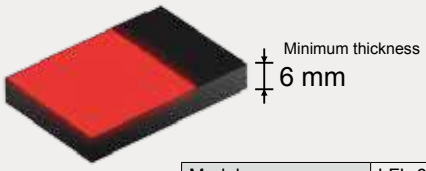
Rich lineup with 43 models

Rich lineup

The lineup consists of 35 models, with 9 sizes of emitting surfaces from 25 x 25 mm to 360 x 250 mm in each color. The rich lineup has a total of 43 models, including the LFL-612-P and LFL-1012-P, which add a plate for installation to the housing.

Energy-saving type that is light-weight and thin

The Light Unit's thin design, with a minimum thickness of 6 mm, allows for space-saving installation.

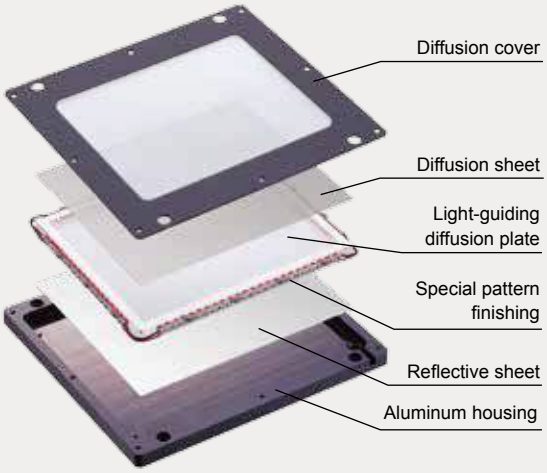


Model name	LFL-612RD2
Power consumption	24 V / 0.6 W
Weight	25 g

Uses a unique method of light guidance

LEDs are placed around the light-guiding diffusion plate. The special pattern finishing achieves illumination with even greater diffusion.

Cross-section image of the LFL-100



Custom orders

Please contact your CCS sales representative.

E.g.: Different shape

Format — Allows you to create a Light Unit with a hole in it and pass things through the center

Can also be used as a camera window

Customizable items

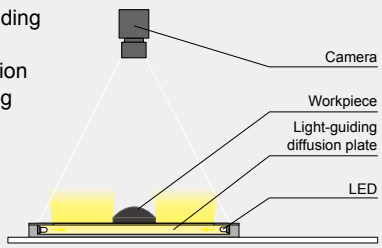
- External/internal diameter
- Wavelength/ color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

Etc.

Example configuration

LEDs embedded around the outside of a square light-guiding diffusion plate. Diffused illumination from a flat emitting surface.

LFL-100



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Imaging example : Imaging of the level of liquid inside a glass container

Description	Liquid volume inspection
Workpiece	Glass container
Before the proposal	LED Ring Light
After the proposal	LFL-180SW2
Result	Emphasizes the level of the liquid

■ Workpiece image

Glass container

■ LED Ring Light

It is difficult to form an image of the liquid level due to surface reflection.

■ LFL-180SW2

It is possible to form an image of the liquid level without surface reflection.

Imaging example : Imaging of the level of liquid inside a plastic container

Description	Liquid volume inspection
Workpiece	Plastic container
Before the proposal	LED Ring Light
After the proposal	LFL-180SW2
Result	Emphasizes the level of the liquid

■ Workpiece image

Plastic container

■ LED Ring Light

It is difficult to form an image of the liquid level due to surface reflection.

■ LFL-180SW2

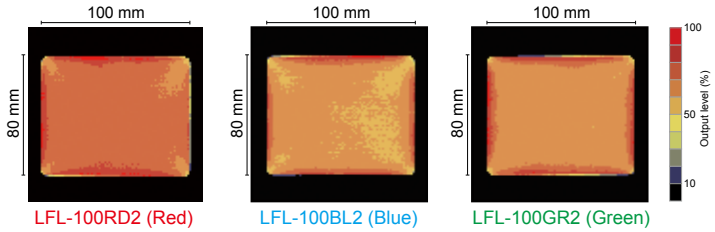
It is possible to form an image of the liquid level without surface reflection.

Data : Uniformity (Representative example)

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

LFL-100

Uniformity (Relative radiance)



LFL-100RD2 (Red) LFL-100BL2 (Blue) LFL-100GR2 (Green)

You can inquire using our website.

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http://www.ccs-grp.com/contact/

LFL series

Refer to our website for product details.

CCS LFL ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup

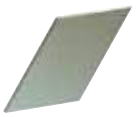
* End of the model name: -P: Type with an affixing plate

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LFL-612RD2	Red	24 V / 0.6 W	630 nm	–	PD3*1 / CC-ST-1024 / PSB / POD*2	25 g
LFL-612SW2	White	24 V / 0.4 W	5,500 K			20 g
LFL-612BL2	Blue		470 nm			25 g
LFL-612GR2	Green		525 nm			
LFL-612RD2-P	Red	24 V / 0.6 W	630 nm			25 g
LFL-612SW2-P	White	24 V / 0.4 W	5,500 K			
LFL-612BL2-P	Blue		470 nm			
LFL-612GR2-P	Green		525 nm			
LFL-1012RD2	Red	24 V / 0.6 W	630 nm			35 g
LFL-1012SW2	White	24 V / 0.8 W	5,500 K			30 g
LFL-1012BL2	Blue		470 nm			35 g
LFL-1012GR2	Green		525 nm			
LFL-1012RD2-P	Red	24 V / 0.6 W	630 nm			35 g
LFL-1012SW2-P	White	24 V / 0.8 W	5,500 K			30 g
LFL-1012BL2-P	Blue		470 nm			35 g
LFL-1012GR2-P	Green		525 nm			
LFL-3212RD2	Red	24 V / 1.6 W	630 nm			80 g
LFL-3212SW2	White	24 V / 2.3 W	5,500 K			
LFL-3212BL2	Blue		470 nm			
LFL-3212GR2	Green		525 nm			
LFL-4012RD2	Red	24 V / 2.1 W	630 nm			105 g
LFL-4012SW2	White	24 V / 2.7 W	5,500 K		PD3 / CC-ST-1024	110 g
LFL-4012BL2	Blue		470 nm		PSB / POD*2	105 g
LFL-4012GR2	Green		525 nm			
LFL-50RD2	Red	24 V / 2.1 W	630 nm			50 g
LFL-50SW2	White	24 V / 3.1 W	5,500 K			
LFL-50BL2	Blue	24 V / 3.0 W	470 nm			
LFL-50GR2	Green		525 nm			
LFL-100RD2	Red	24 V / 5.1 W	630 nm	Light control film		215 g
LFL-100SW2	White	24 V / 5.3 W	5,500 K			220 g
LFL-100BL2	Blue		470 nm			215 g
LFL-100GR2	Green		525 nm			
LFL-180RD2	Red	24 V / 7.1 W	630 nm			375 g
LFL-180SW2	White	24 V / 9.1 W	5,500 K			370 g
LFL-180BL2	Blue		470 nm			375 g
LFL-180GR2	Green		525 nm			
LFL-200RD2	Red	24 V / 12 W	630 nm			500 g
LFL-200SW2	White		5,500 K		PD3	
LFL-200BL2	Blue		470 nm		PSB / POD*2	495 g
LFL-200GR2	Green		525 nm			
LFL-360RD2	Red	24 V / 30 W	630 nm	–	PD3	2,360 g
LFL-360SW2	White	24 V / 37 W	5,500 K		PSB* / POD*2 *Can only use red.	2,320 g
LFL-360BL2	Blue	24 V / 38 W	470 nm			

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*1: The red Light cannot be used with the Digital Control Unit PD3-5024-4/10024-8 series.
*2: 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

Options



This is a plastic film which lines up fine louvers with an extremely narrow gap between them. It reduces light diffusion in a certain direction and increases parallelism.

Light control film

Model name	Applicable Light Unit (Common for all colors)
LC-LFL-100	LFL-100
LC-LFL-180	LFL-180
LC-LFL-200	LFL-200

▶ P.226

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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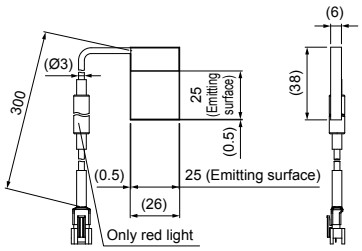
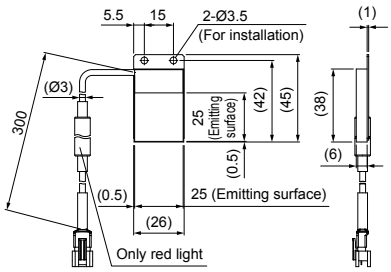
Dimensions (mm)

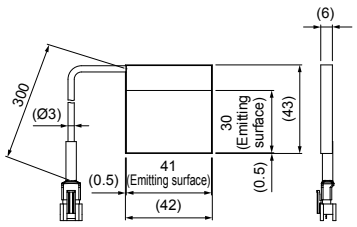
LFL-612RD2/SW2/BL2/GR2



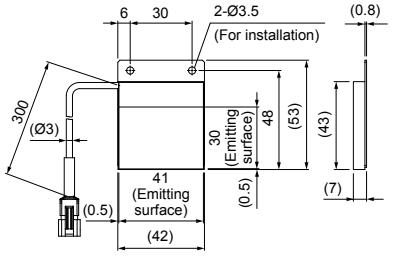
LFL-612RD2-P/SW2-P/BL2-P/GR2-P



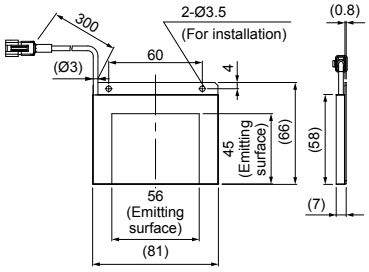
LFL-1012RD2/SW2/BL2/GR2



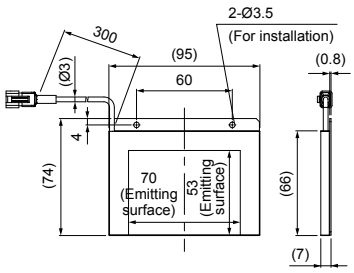
LFL-1012RD2-P/SW2-P/BL2-P/GR2-P



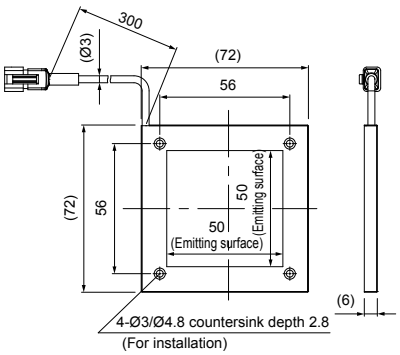
LFL-3212RD2/SW2/BL2/GR2



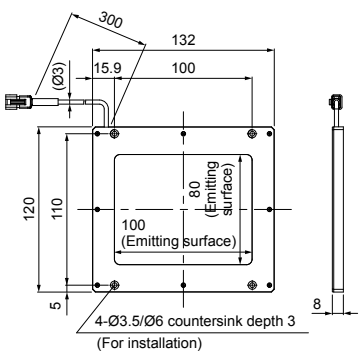
LFL-4012RD2/SW2/BL2/GR2



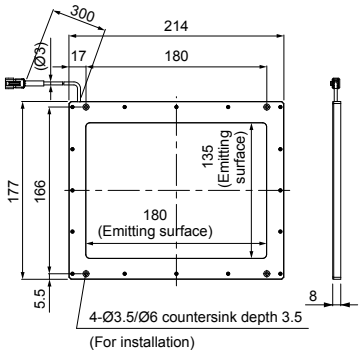
LFL-50RD2/SW2/BL2/GR2



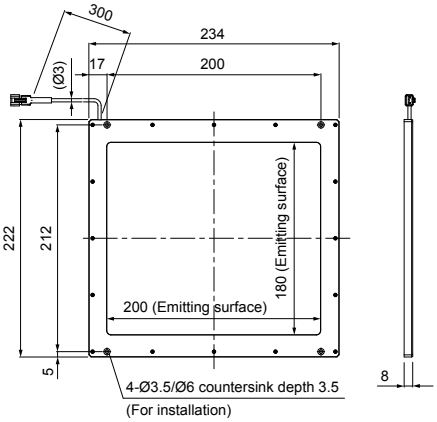
LFL-100RD2/SW2/BL2/GR2



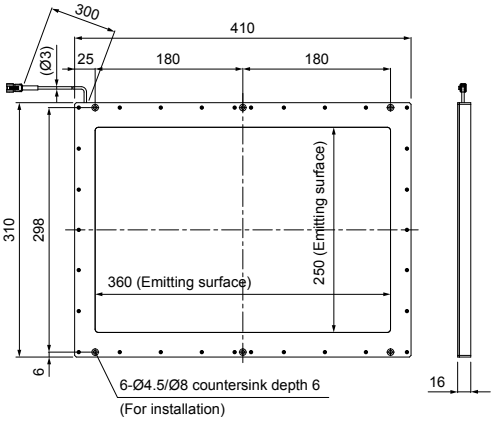
LFL-180RD2/SW2/BL2/GR2



LFL-200RD2/SW2/BL2/GR2



LFL-360RD2/SW2/BL2



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Dome Lights
HPD2 series

Refer to our website for product details.
CCS HPD2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light evenly through the dome-shaped reflective panel

Applications Visual/text/color determination inspections on glossy surfaces, curved surfaces, or uneven surfaces, inspection for engraving/damage/stains on stain finishing, visual inspection for metal with hairline finishing, and inspection for parts on circuit boards, etc.

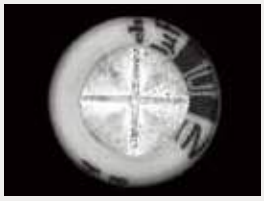
Supports applications for a wide variety of industries

It is bright and even if the distance from the workpiece to the Light Unit is changed, there is little change in the uniform region. Therefore, it can be used in a wide range of industries.

Semiconductor industry (Circuit board)

HPD2-100SW (White)

Electronic parts industry (Condenser)



HPD2-150SW (White)

Food industry (Chocolate)

HPD2-250SW (White)

Packaging industry (Top of a drink container)

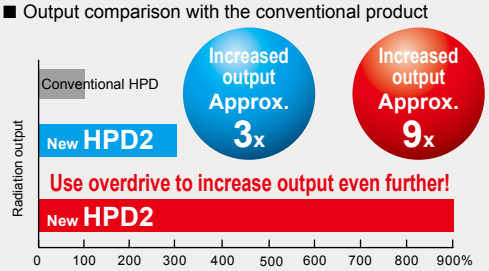
HPD2-150SW (White)

Illuminates diffused light at high output

Light from the surface-mounted LEDs is diffused inside the dome-shaped reflective panel. The diffused light from the wide uniform region is illuminated evenly.

Achieved higher output than the conventional product

■ Output comparison with the conventional product



* This is a comparison between the HPD-100 and HPD2-100, using red and white colors.
* It can be combined with a Strobe Control Unit for even brighter emission than continuous emission.
* The data included is for reference only and does not guarantee the quality of this product.

Added two sizes and an infrared and full color (RGB) type

We added the HPD2-75 and HPD2-200 models. Also, we added infrared (860 nm) and full color (RGB) types to the lineup as variation for wavelengths, increasing the applications of our products.

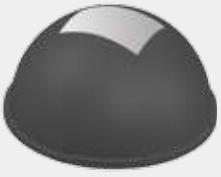
Custom orders

Please contact your CCS sales representative.

E.g.: Different shape

Format/ material

Changed the camera aperture to a rectangle



Customizable items

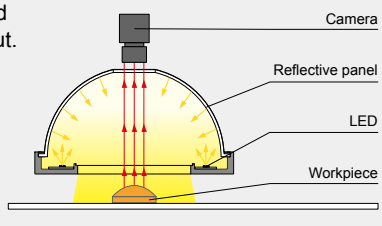
External/internal diameter | Wavelength/ color
Increase output | Cable length
Illuminating angle | Format/ material
Connector format | Installation/ mounting

Etc.

Example configuration

Uses a unique illuminating mechanism to illuminate diffused light at high output.

HPD2-150



We have various materials.

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

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

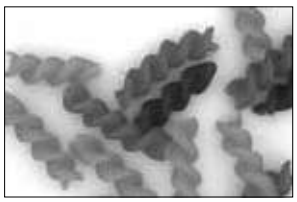
Imaging example : Imaging of foreign materials mixed in food

Description	Mixed foreign materials inspection
Workpiece	Macaroni
Before the proposal	HPD2-200SW
After the proposal	HPD2-200IR860: Infrared type
Result	Emphasizes the foreign material

■ Workpiece image

Macaroni

■ HPD2-200SW



It is difficult to form an image of the foreign material using white light.

■ HPD2-200IR860

It is possible to form an image of the foreign material using infrared light.

* This workpiece was processed by CCS for sample imaging.

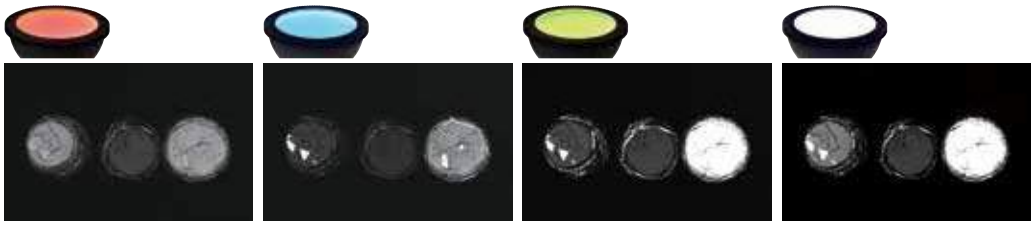
Imaging example : Exterior imaging using color determination of a multi-colored workpiece

■ Workpiece image

Chocolate

Description	Visual inspection
Workpiece	Chocolate
Before the proposal	–
After the proposal	HPD2-200FC: Full color (RGB) type
Result	Allows for multi-color determination

■ HPD2-200FC: Full color (RGB) type



Imaging with red illumination | Imaging with blue illumination | Imaging with green illumination | Imaging with white illumination

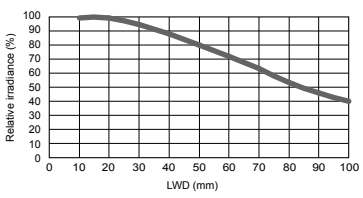
Data: Relative irradiance graph/Uniformity (Representative example)

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

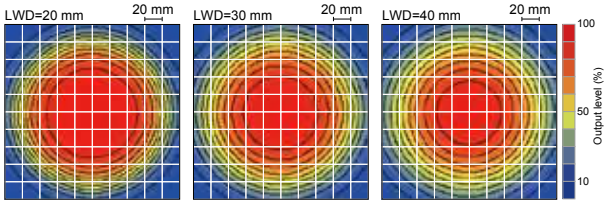
HPD2-200SW

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



You can inquire using our website.

Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries

Inquire on our website here.
http://www.ccs-grp.com/contact/

HPD2 series

Refer to our website for product details.
CCS HPD2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

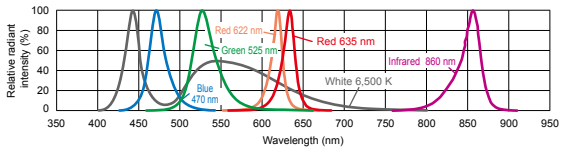
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
HPD2-75RD	Red	24 V / 17 W	635 nm			
HPD2-75SW	White	24 V / 16 W	6,500 K		PD3	
HPD2-75BL	Blue		470 nm		PSB POD*2	140 g
HPD2-75IR860	Infrared	24 V / 12 W	860 nm			
HPD2-75FC	Red/Green/Blue	24 V / 6.0 W	622 nm/525 nm/470 nm		PD3*1	
HPD2-100RD	Red	24 V / 17 W	635 nm			
HPD2-100SW	White	24 V / 23 W	6,500 K		PD3	
HPD2-100BL	Blue		470 nm		PSB POD*2	160 g
HPD2-100IR860	Infrared	24 V / 23 W	860 nm			
HPD2-100FC	Red/Green/Blue	24 V / 11 W	622 nm/525 nm/470 nm		PD3*1	
HPD2-150RD	Red	24 V / 27 W	635 nm			
HPD2-150SW	White		6,500 K		PD3	
HPD2-150BL	Blue		470 nm	Bracket	PSB* POD*2	285 g
HPD2-150IR860	Infrared	24 V / 35 W	860 nm		*Cannot use infrared.	
HPD2-150FC	Red/Green/Blue	24 V / 15 W	622 nm/525 nm/470 nm		PD3*1	
HPD2-200RD	Red	24 V / 34 W	635 nm			
HPD2-200SW	White	24 V / 41 W	6,500 K		PD3 POD*2	
HPD2-200BL	Blue		470 nm			460 g
HPD2-200IR860	Infrared	24 V / 46 W	860 nm			
HPD2-200FC	Red/Green/Blue	24 V / 19 W	622 nm/525 nm/470 nm		PD3*1	
HPD2-250RD	Red	24 V / 45 W	635 nm			
HPD2-250SW	White	24 V / 46 W	6,500 K		PD3 POD*2	
HPD2-250BL	Blue		470 nm			650 g
HPD2-250IR860	Infrared	24 V / 46 W	860 nm			
HPD2-250FC	Red/Green/Blue	24 V / 24 W	622 nm/525 nm/470 nm		PD3*1	
HPD2-400RD	Red	24 V / 45 W	635 nm			
HPD2-400SW	White	24 V / 46 W	6,500 K		PD3 POD*2	
HPD2-400BL	Blue		470 nm	–		1,300 g
HPD2-400IR860	Infrared	24 V / 46 W	860 nm			
HPD2-400FC	Red/Green/Blue	24 V / 30 W	622 nm/525 nm/470 nm		PD3*1	

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*1: Use a 3-channel Control Unit for a full color (RGB) type.
*2: 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

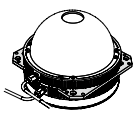
Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Options

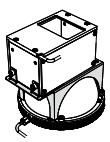


Combine with a Ring Light to achieve imaging by light switching and simultaneous lighting.

Light joint bracket

Model name	Applicable Light Unit (Common for all colors)
BK-75-JO	HPD2-75 series
BK-100-JO	HPD2-100 series
BK-150-JO	HPD2-150 series
BK-200-JO	HPD2-200 series
BK-250-JO	HPD2-250 series

▶ P.227



Combine with a Coaxial Light to solve uneven illumination and achieve uniform illumination from all directions.

Coaxial Light joint bracket

Model name	Applicable Light Unit (Common for all colors)
BK-HPD2-75-LFV	HPD2-75 series
BK-HPD2-100-LFV	HPD2-100 series
BK-HPD2-150-LFV	HPD2-150 series
BK-HPD2-200-LFV	HPD2-200 series
BK-HPD2-250-LFV	HPD2-250 series

▶ P.228

Achieves installation using installation holes with a larger gap than the Light Unit body installation holes, or installation on a vertical surface.

Expansion mounting bracket

Model name	Applicable Light Unit (Common for all colors)
BK-75-CI	HPD2-75 series
BK-100-CI	HPD2-100 series
BK-150-CI	HPD2-150 series
BK-200-CI	HPD2-200 series
BK-250-CI	HPD2-250 series

▶ P.228

• Example of the expansion mounting bracket in use

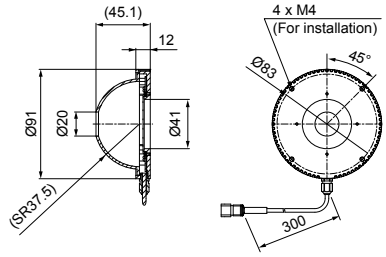
Dome Light: Image of usage with the HPD2-250SW

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

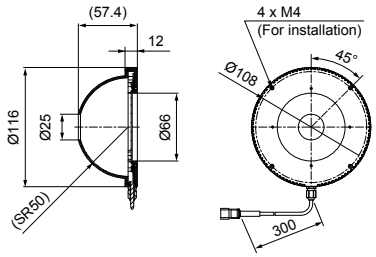
Dimensions (mm)

* M4 and M6 installation holes are tapped and perforated holes.

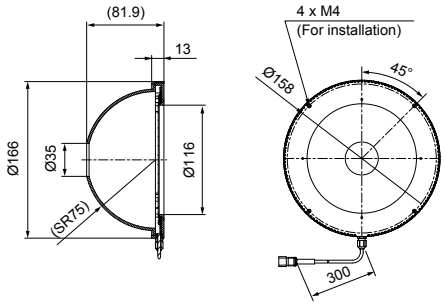
HPD2-75RD/SW/BL/FC/IR860



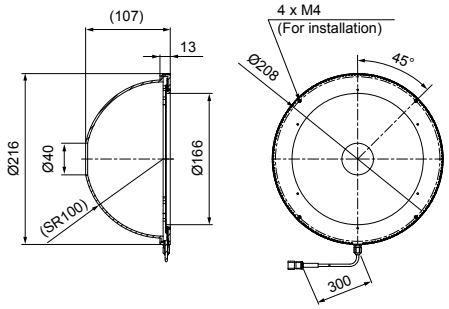
HPD2-100RD/SW/BL/FC/IR860



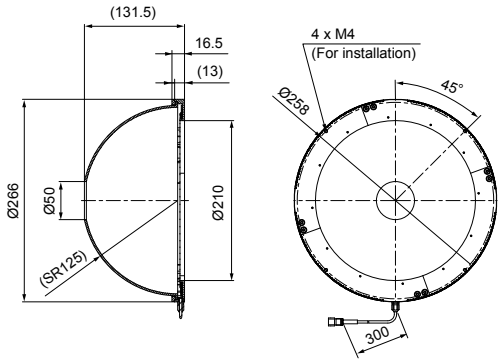
HPD2-150RD/SW/BL/FC/IR860



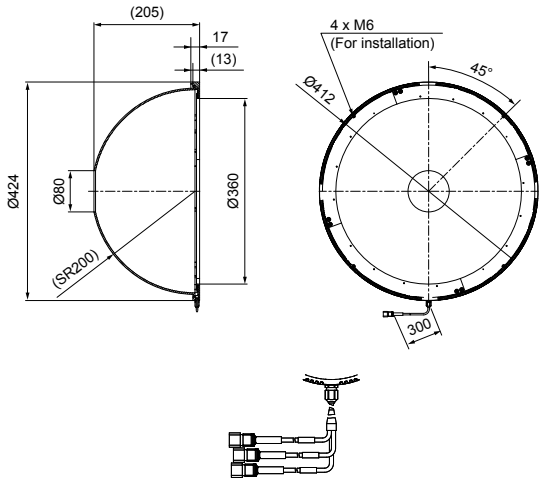
HPD2-200RD/SW/BL/FC/IR860



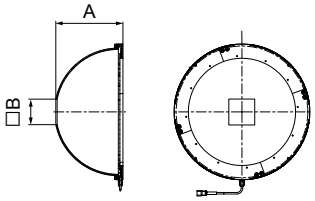
HPD2-250RD/SW/BL/FC/IR860



HPD2-400RD/SW/BL/FC/IR860



- The camera aperture can be changed to a square.



- Special order

Model	Dimension A	Dimension B
HPD2-75□-SQ20	45.1	20
HPD2-100□-SQ30	56.7	30
HPD2-150□-SQ40	81.3	40
HPD2-200□-SQ50	105.8	50
HPD2-250□-SQ60	130.3	60
HPD2-400□-SQ80	205	80

* □ is a placeholder for letters that indicate the color of the emitted light.
* Dimensions are subject to change.

* The full color type (HPD2-□□FC, HPD2-400FC-FT) has three connectors.
Use a 3-channel Control Unit if controlling intensity separately for each color.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Dome Lights
LDM2 series

Refer to our website for product details.
CCS LDM2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light from a cone-shaped emitting surface


LDM2-50RD2


LDM2-50SW2


LDM2-90BL2

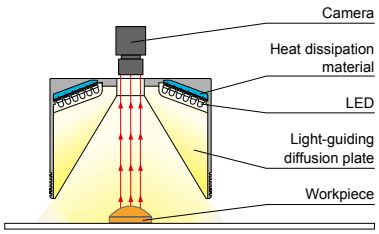

LDM2-90GR2

Applications Inspection for the visual/text/color determination on glossy surfaces, curved surfaces, or uneven surfaces, soldering inspection, surface inspection for metal parts, text inspection for can bottoms, and character recognition for glossy workpieces, etc.

Characteristics

Light illuminated from the LEDs is transmitted through the light-guiding diffusion plate, and diffused light is illuminated evenly from a wide emitting surface to surround the whole workpiece.

Example configuration (LDM2-90)



We accept custom orders.
Please feel free to inquire.

- Change to format
- Increase brightness
- Change to wavelength, etc.

Imaging example: Imaging of text on an aluminum bottle can


Workpiece: Aluminum bottle can

■LED Bar Light


It is difficult to form an image of the text due to the influence of uneven illumination.

⇒

■LDM2-90RD2

It is possible to illuminate the whole thing evenly to form an image of the text.

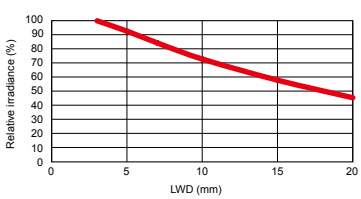
Data: Relative irradiance graph/Uniformity (Representative example)

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

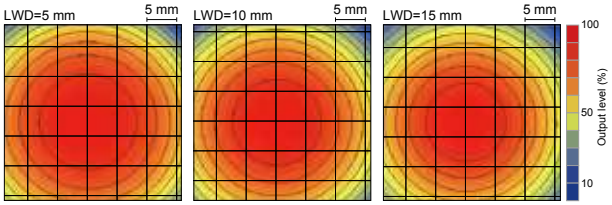
LDM2-50RD2

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



We have various materials.
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Download here.
http://www.ccs-grp.com/dl/

Lineup

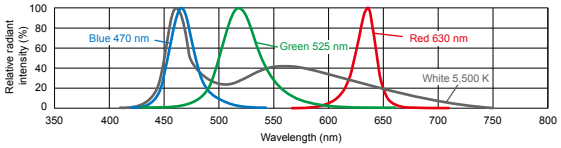
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LDM2-50RD2	Red	24 V / 3.6 W	630 nm	–	PD3, CC-ST-1024, PSB, POD*	100 g
LDM2-50SW2	White	24 V / 5.0 W	5,500 K			
LDM2-50BL2	Blue		470 nm			
LDM2-50GR2	Green		525 nm			
LDM2-90RD2	Red	24 V / 14 W	630 nm		PD3, PSB, POD*	500 g
LDM2-90SW2	White	24 V / 18 W	5,500 K			
LDM2-90BL2	Blue		470 nm			
LDM2-90GR2	Green		525 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* 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

Light spectrum

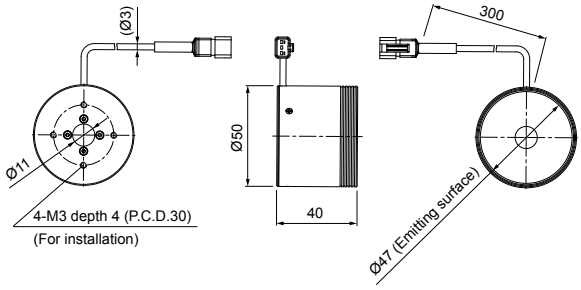


If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

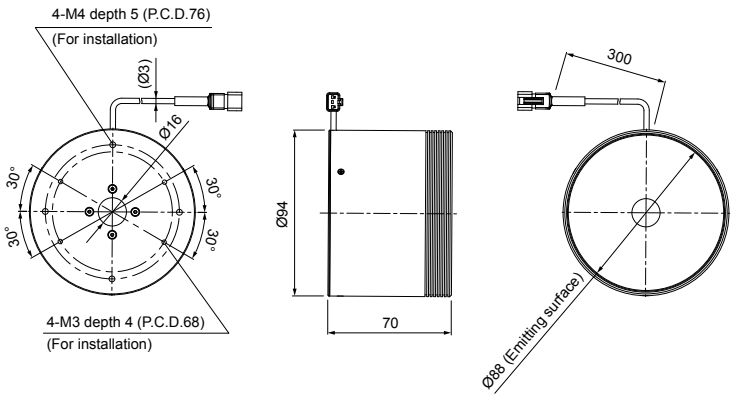
Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Dimensions (mm)

LDM2-50RD2/SW2/BL2/GR2



LDM2-90RD2/SW2/BL2/GR2



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Dome Lights
LAV series

Refer to our website for product details.
CCS LAV ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light evenly using a mechanism that combines a diffused lighting and a coaxial lighting


LAV-80RD2


LAV-80SW2


LAV-80BL2


LAV-80GR2

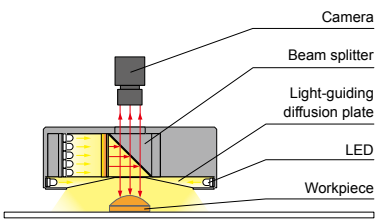
Applications Faulty plating inspection, inspection of a sealed target, inspection for foreign material attached to a glossy surface, character recognition and text inspection for glossy surfaces, and dimension measuring for electronic parts, etc.

Characteristics

This Light Unit combines diffused lighting and a coaxial lighting.
It can evenly perform uniform illumination for glossy, curved workpieces.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

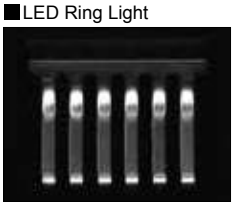
Example configuration (LAV-80)



Imaging example: Exterior imaging of a connector pin


Workpiece: Connector pin

■LED Ring Light


It is difficult to illuminate the whole thing evenly to form an image of the exterior.

■LAV-80RD2


It is possible to illuminate the whole thing evenly to form an image of the exterior.

Lineup

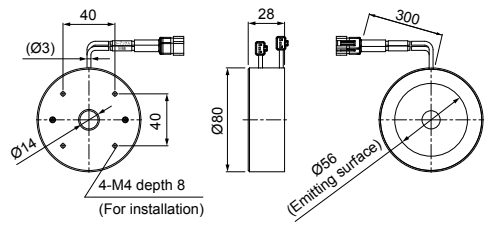
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LAV-80RD2	Red	24 V / 3.6 W	630 nm	–	PD3 / POD*1	190 g
LAV-80SW2	White	24 V / 5.0 W	5,500 K			
LAV-80BL2	Blue		470 nm			
LAV-80GR2	Green		525 nm			

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* Use a 2-channel Control Unit.
*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

Dimensions (mm)

LAV-80RD2/SW2/BL2/GR2



* The emitting surface for the LAV-80SW2/BL2/GR2 is Ø54.

Illumination part	Power consumption
Coaxial illumination part	Red: 1.0 W White/Blue/Green: 1.6 W
Diffused illumination part	Red: 2.6 W White/Blue/Green: 3.4 W

If adjusting the intensity for each part separately, use a 2-channel Control Unit.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Dome Lights
PDM series

Refer to our website for product details.
CCS PDM ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light evenly using a mechanism that combines a diffused lighting, coaxial lighting, and low-angle lighting

PDM-150-15GR2

PDM-150-15BL2

PDM-150-15SW2

PDM-150-15RD2

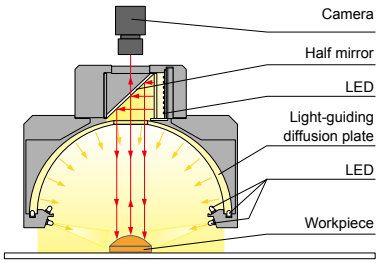
Applications Faulty plating inspection, inspection of a sealed target, inspection for foreign material attached to a glossy surface, character recognition and text inspection for glossy surfaces, and dimension measuring for electronic parts, etc.

Characteristics

This Light Unit combines the three types: dome lighting, low-angle lighting, and coaxial lighting. It illuminates the workpiece with uniform diffused light.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

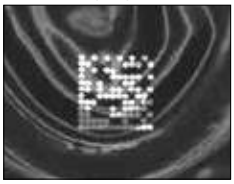
Example configuration (PDM-150-15)



Imaging example: 2-D code imaging

Workpiece: Contact lens package

■LED Ring Light



It is difficult to determine the 2-D code due to the glossy and wavy surface.

■PDM-150-15RD2

It is possible to determine the 2-D code by evenly illuminating the surface.

Lineup

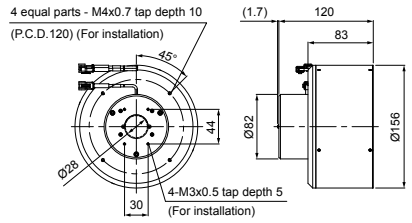
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Unit	Weight
PDM-150-15RD2	Red	24 V / 18 W	630 nm	–	PD3	1,140 g
PDM-150-15SW2	White	24 V / 22 W	5,500 K			1,170 g
PDM-150-15BL2	Blue		470 nm			1,140 g
PDM-150-15GR2	Green		525 nm			

* Use a 3-channel Control Unit.

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

Dimensions (mm)

PDM-150-15RD2/SW2/BL2/GR2



Illumination part	Power consumption
Coaxial illumination part	Red: 3.1 W, White: 2.2 W, Blue/Green: 2.7 W
Dome illumination part	Red: 10.2 W, White: 14 W, Blue/Green: 13 W
Low-angle illumination part	Red: 4.6 W, White/Blue/Green: 6.1 W

If adjusting the intensity for each part separately, use a 3-channel Control Unit.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

You can inquire using our website.
Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here.
http://www.ccs-grp.com/contact/

Flat-Dome Lights
LFX2 series

Refer to our website for product details.
CCS LFX2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

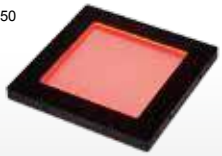
Uses original lighting technology to recreate the effect of a Coaxial and Dome Light


LFX2-150IR850


LFX2-200SW


LFX2-50RD


LFX2-75RD


LFX2-100RD

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


Workpiece: Food (Candy)

Coaxial Lights LFV3-70RD


The packaging film can be imaged.

Flat-Dome Lights LFX2-50RD


The packaging film can be imaged.

Imaging example: Imaging of printed text

Dome Lights PDM-150-15RD2


The printed text can be imaged.

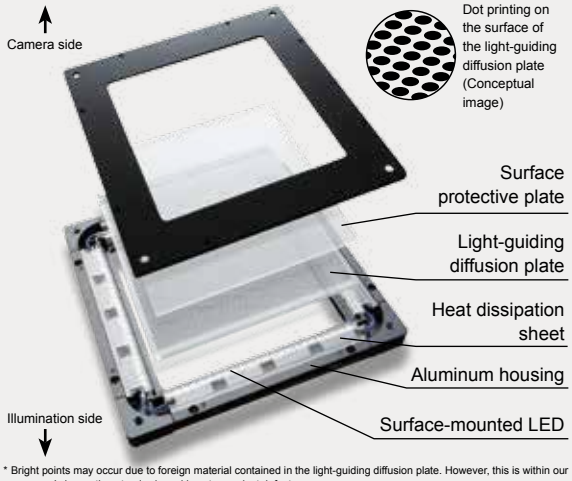
Flat-Dome Lights LFX2-100RD


The printed text can be imaged.

Illuminates uniform diffused light using original 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

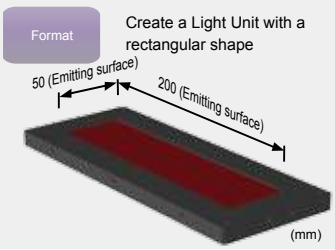


* Bright points may occur due to foreign material contained in the light-guiding diffusion plate. However, this is within our company's inspection standards and is not a product defect.

Custom orders

Please contact your CCS sales representative.

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



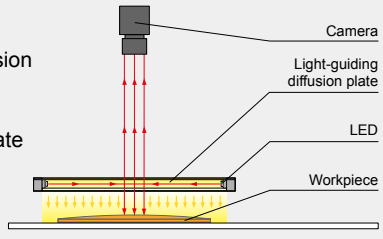
Customizable items

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.

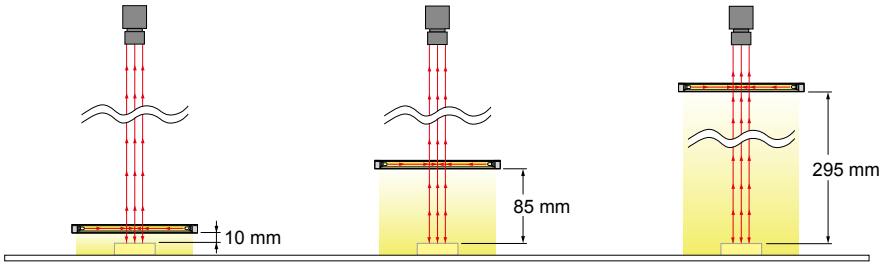
LFX2-100



We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | 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

Canned food

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

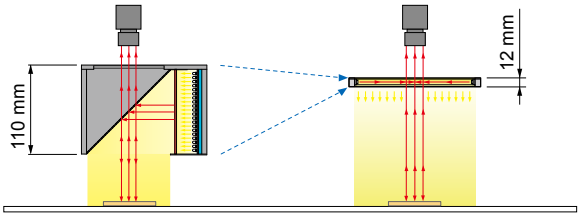
With illumination from LWD 85 mm, imaging that emphasizes only the unevenness of the pull tab is possible.

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

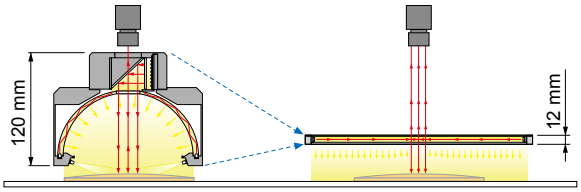
* Imaging environment: LFX2-100RD, f25 lens, WD 365 mm, field of vision: 69 mm

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

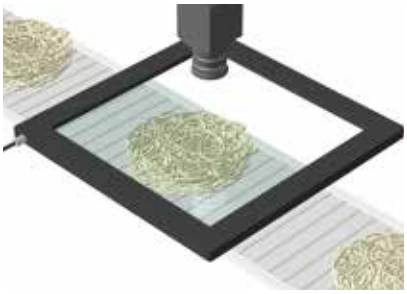
Coaxial Light (LFV3-100) | Flat-Dome Light (LFX2-100)



Dome Light (PDM-150-15) | Flat-Dome Light (LFX2-200)



Imaging example : Imaging of foreign materials mixed in instant noodles

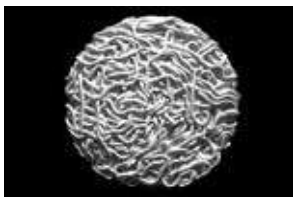


Description	Mixed foreign materials inspection
Workpiece	Instant noodles
Before the proposal	LED Ring Light
After the proposal	LFX2-200IR850: Infrared type
Result	Emphasizes the foreign material

■ Workpiece image

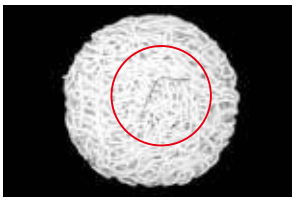
Instant noodles

■ 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.

LFX2 series

Refer to our website for product details.

CCS LFX2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

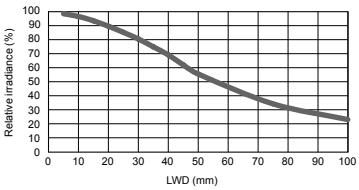
Data: Relative irradiance graph/Uniformity (Representative example)

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

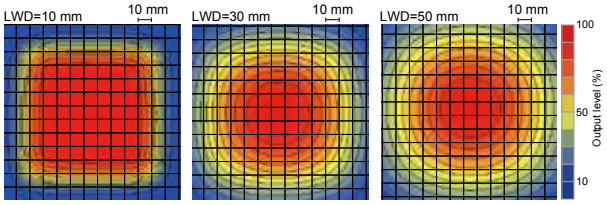
LFX2-100SW

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative irradiance)



Lineup

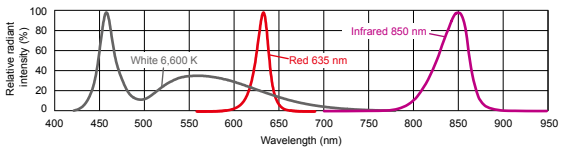
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LFX2-50RD	Red	24 V / 11 W	635 nm	–	PD3 CC-ST-1024 PSB POD*1	180 g
LFX2-50SW	White	24 V / 6.1 W	6,600 K			
LFX2-50IR850	Infrared	24 V / 6.6 W	850 nm			
LFX2-75RD	Red	24 V / 11 W	635 nm		PD3 CC-ST-1024* PSB POD*1 *Can only use white.	270 g
LFX2-75SW	White	24 V / 9.1 W	6,600 K			
LFX2-75IR850	Infrared	24 V / 14 W	850 nm			
LFX2-100RD	Red	24 V / 16 W	635 nm			350 g
LFX2-100SW	White	24 V / 13 W	6,600 K			
LFX2-100IR850	Infrared	24 V / 14 W	850 nm		PD3 PSB POD*1	
LFX2-150RD	Red	24 V / 21 W	635 nm			570 g
LFX2-150SW	White	24 V / 19 W	6,600 K			
LFX2-150IR850	Infrared	24 V / 20 W	850 nm			
LFX2-200RD	Red	24 V / 31 W	635 nm		PD3 PSB* POD*1 *Can only use white and infrared.	920 g
LFX2-200SW	White	24 V / 25 W	6,600 K			
LFX2-200IR850	Infrared	24 V / 27 W	850 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

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.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

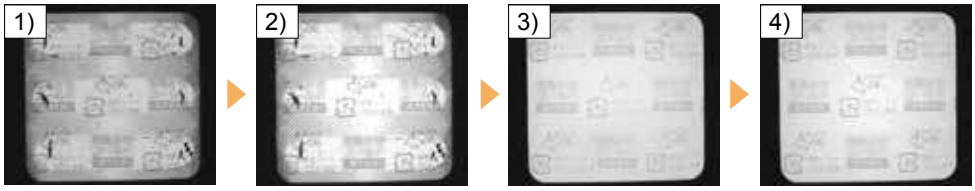
To achieve a perfect image

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 wider than normal.
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)



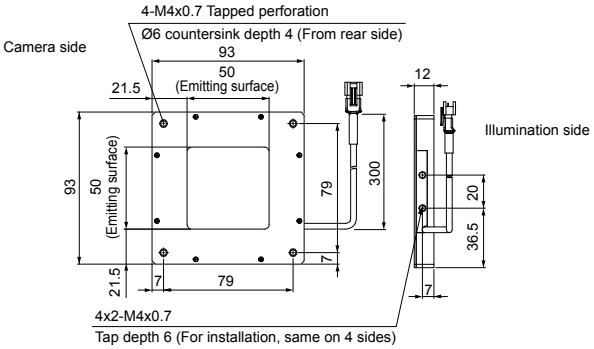
Ambient light may reflect off the Light Unit surface or workpiece surface, affecting the imaging

Method for preventing effects from ambient light

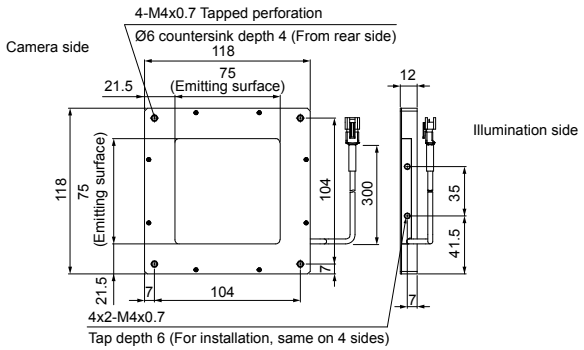
- Prevent ambient light from entering with a hood or the like.
- If using red light, equip a sharp-cut filter to the lens.
- Increase the camera's shutter speed. (Increase the Light Unit intensity somewhat.)

Dimensions (mm)

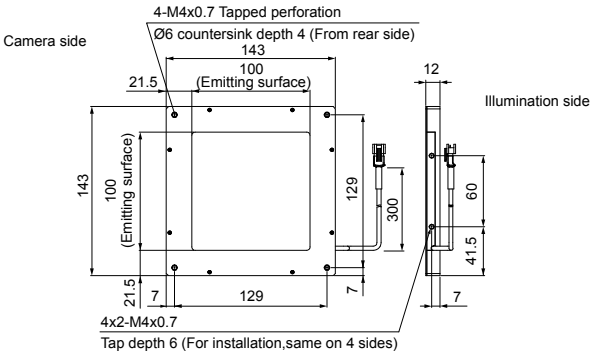
LFX2-50RD/SW/IR850



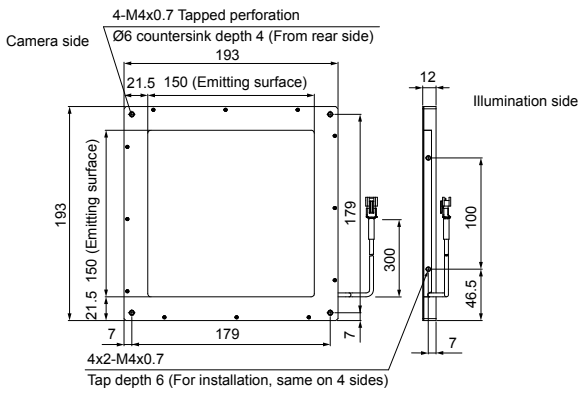
LFX2-75RD/SW/IR850



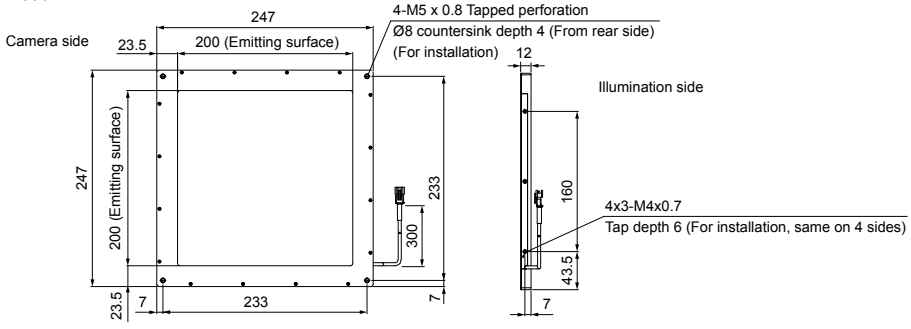
LFX2-100RD/SW/IR850



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.123 for details.

Coaxial Lights
LFV3 series

Refer to our website for product details.
CCS LFV3 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light evenly from the same axis as the camera

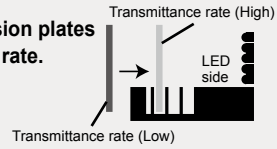
Applications Inspection for fault, damage, scratches, or dents on glossy surfaces or mirrors, pattern inspection on printed circuit boards, dimension measuring for glass, and inspection for damage and dents on resin molded products, etc.

Freely customize the diffusion

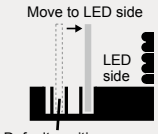
Customize the diffusion

Diffusion plate status	Result
Change the transmittance rate from (high) to (low)	Increased uniformity
Change the installation position to the LED side	Emphasized directionality

1) Prepared two types of diffusion plates with different transmittance rate.
Replace the diffusion plate to change the transmittance rate.



2) The installation position of the diffusion plate can be adjusted.
Change the position to achieve various imaging effects.



LFV3-CP series

Replacing the half-mirror with a beam splitter increased accuracy. It is perfect for tiny workpieces and environments with limited installation space.


LFV3-CP-13SW

Coaxial Light that supports high-resolution cameras

Highly-accurate optical glass is used for the camera window and the half-mirror. This allows for stable imaging when using high-resolution cameras.

LFV3 series, a Coaxial Light with improved quality

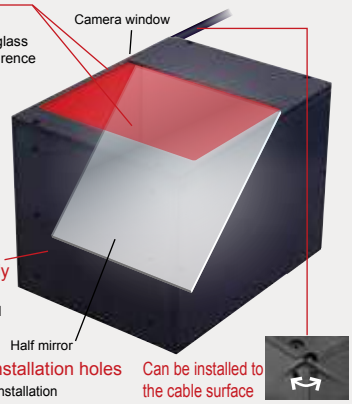
Uses optical glass
For the camera window and half-mirror, we used optical glass which is also used for interference tests for laser sources.
Its optical glass with a profile irregularity of 0.3 µm.
* In our evaluation

Expanded area for the camera window
By making the camera window wider, we ensured a larger field of vision.

Used an aluminum body
Used aluminum alloy to improve heat dissipation and achieve a durable body.

Increased Light Unit installation holes
We increased the number of installation holes for the Light Unit.
Various installation directions are supported.

Can be installed to the cable surface
The cable can be bent flat in relation to the installation surface.



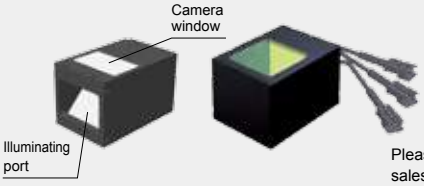
* This description excludes the LFV3-CP-13 series and the LFV3-CP-18 series.

Custom orders

E.g.: Different shape
Format/ material
Created a Light Unit that changed the illuminating port from vertical to horizontal

E.g.: Different color
Wavelength/ color
Creating a full color (RGB) Light Unit

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

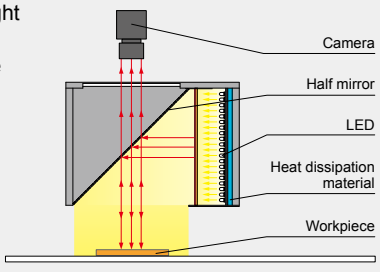


Please contact your CCS sales representative.

Example configuration

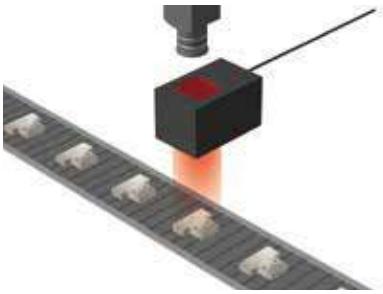
By using the half mirror, diffused light from the LED is illuminated on the same axis as the camera axis.

LFV3-100



We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Imaging example : Imaging of engraved text on a metal connector hood



Description	Character recognition
Workpiece	Connector hood
Before the proposal	LED Bar Light
After the proposal	LFV3-50RD
Result	Emphasizes the engraved text

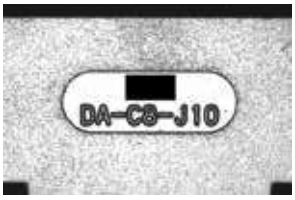
■ Workpiece image

Metal connector hood

■ LED Bar Light

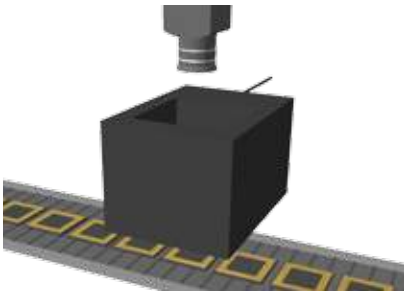
It is difficult to read the text engraved on the surface.

■ LFV3-50RD



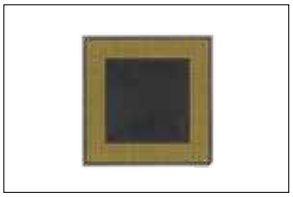
Effect from the surface unevenness is reduced and a clear image of the engraved text can be made.

Imaging example : Imaging for circuit board through holes



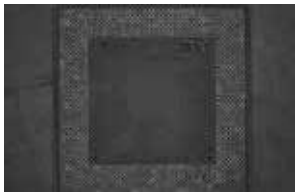
Description	Visual inspection
Workpiece	Circuit board
Before the proposal	LED Ring Light
After the proposal	LFV3-100RD
Result	Improved uniformity

■ Workpiece image



Circuit board

■ LED Ring Light



With a Ring Light, it is difficult to form an image of the difference between the foundation and the through hole.

■ LFV3-100RD

It is possible to form a clear image of the difference between the foundation and the through hole.

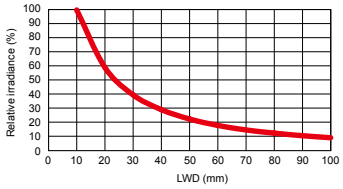
Data: Relative irradiance graph/Uniformity (Representative example)

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

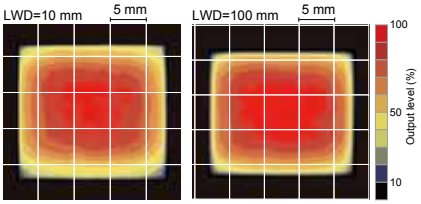
LFV3-35RD

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative radiance)



You can inquire using our website.

Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries

Inquire on our website here.
http://www.ccs-grp.com/contact/

LFV3 series

Refer to our website for product details.

CCS LFV3 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

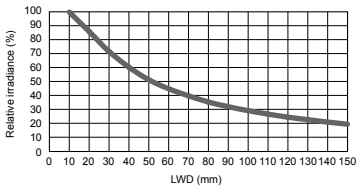
Data: Relative irradiance graph/Uniformity (Representative example)

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

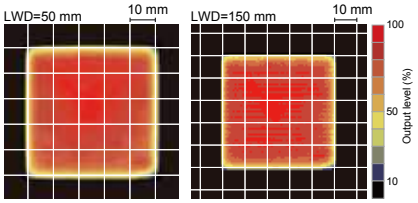
LFV3-100SW

Relative irradiance graph (LWD Characteristics)*2 *1

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



Uniformity (Relative radiance)



Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LFV3-34RD	Red	24 V / 3.7 W	635 nm	–	PD3 CC-ST-1024 PSB POD*1	80 g
LFV3-34SW	White	24 V / 3.2 W	6,000 K			
LFV3-34BL	Blue		470 nm			
LFV3-35RD	Red	24 V / 3.1 W	630 nm	Diffusion plate Polarizing plate Light control film		175 g
LFV3-35SW	White	24 V / 3.7 W	6,500 K			
LFV3-35BL	Blue	24 V / 3.1 W	460 nm			
LFV3-40RD	Red	24 V / 4.6 W	635 nm	–		100 g
LFV3-40SW	White		6,000 K			
LFV3-40BL	Blue		470 nm			
LFV3-50RD	Red	24 V / 8.1 W	630 nm	Diffusion plate Polarizing plate Light control film	PD3 CC-ST-1024* PSB POD*1 * Can only use red and blue.	335 g
LFV3-50SW	White	24 V / 11 W	6,500 K			
LFV3-50BL	Blue	24 V / 9.1 W	460 nm			
LFV3-50X100RD	Red	24 V / 17 W	630 nm			530 g
LFV3-50X100SW	White	24 V / 20 W	6,500 K			
LFV3-50X100BL	Blue	24 V / 17 W	460 nm			
LFV3-70RD	Red	24 V / 13 W	630 nm		PD3 PSB POD*1	620 g
LFV3-70SW	White	24 V / 19 W	6,500 K			
LFV3-70BL	Blue	24 V / 16 W	460 nm			
LFV3-100RD	Red	24 V / 22 W	630 nm			1,060 g
LFV3-100SW	White	24 V / 27 W	6,500 K			
LFV3-100BL	Blue		460 nm			
LFV3-130RD	Red	24 V / 31 W	630 nm		PD3 POD*1	1,750 g
LFV3-130SW	White	24 V / 46 W	6,500 K			
LFV3-130BL	Blue	24 V / 38 W	460 nm			
LFV3-200RD	Red	24 V / 43 W	630 nm		PD3 POD*1 *Cannot use white.	4,350 g
LFV3-200SW	White	24 V / 64 W	6,500 K			
LFV3-200BL	Blue	24 V / 53 W	460 nm			
LFV3-CP-13RD	Red	24 V / 2.1 W	635 nm	–	PD3 CC-ST-1024 PSB POD*1	37 g
LFV3-CP-13SW	White	24 V / 2.3 W	6,000 K			
LFV3-CP-13BL	Blue	24 V / 1.3 W	470 nm			
LFV3-CP-18RD	Red	24 V / 3.3 W	635 nm			70 g
LFV3-CP-18SW	White	24 V / 4.1 W	6,000 K			
LFV3-CP-18BL	Blue	24 V / 3.4 W	470 nm			

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

For details about determining the field of vision for the Coaxial Light, refer to "Determining the field of view of coaxial lighting" on P. 239 in the Technical Guide.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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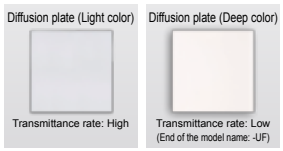
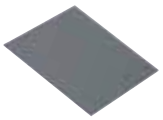
Options

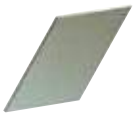


Replace the default diffusion plate to change the transmittance rate.

* When selecting, be aware that the default diffusion plate varies based on the emitted color.



Use with a polarizing filter to remove the light's surface reflection.



This is a plastic film which lines up fine louvers with an extremely narrow gap between them. It reduces light diffusion in a certain direction and increases parallelism.

Diffusion plate

Model name	Applicable Light Unit (Common for all colors)
DF-LFV3-35	LFV3-35
DF-LFV3-50	LFV3-50
DF-LFV3-50X100	LFV3-50X100
DF-LFV3-70	LFV3-70
DF-LFV3-100	LFV3-100
DF-LFV3-130	LFV3-130
DF-LFV3-200	LFV3-200

Model name	Applicable Light Unit (Common for all colors)
DF-LFV3-35-UF	LFV3-35
DF-LFV3-50-UF	LFV3-50
DF-LFV3-50X100-UF	LFV3-50X100
DF-LFV3-70-UF	LFV3-70
DF-LFV3-100-UF	LFV3-100
DF-LFV3-130-UF	LFV3-130
DF-LFV3-200-UF	LFV3-200

▶ P.224

Polarizing plate

Model name	Applicable Light Unit (Common for all colors)
PL-LFV3-35	LFV3-35
PL-LFV3-50	LFV3-50
PL-LFV3-50X100	LFV3-50X100
PL-LFV3-70	LFV3-70
PL-LFV3-100	LFV3-100
PL-LFV3-130	LFV3-130
PL-LFV3-200	LFV3-200

▶ P.225

Light control film

Model name	Applicable Light Unit (Common for all colors)
LC-LFV3-35	LFV3-35
LC-LFV3-50	LFV3-50
LC-LFV3-50X100	LFV3-50X100
LC-LFV3-70	LFV3-70
LC-LFV3-100	LFV3-100
LC-LFV3-130	LFV3-130
LC-LFV3-200	LFV3-200

▶ P.226

Regarding changing the diffusion plate and adjusting the position

Models that support replacing the diffusion plate

Model (Common for all colors)
LFV3-35/50/50X100/70/100/130/200

* The LFV3-34/40/CP-13/CP-18 does not support this feature.

Models that support adjusting the position of the diffusion plate

Model (Common for all colors)
LFV3-50/50X100/70/100/130/200

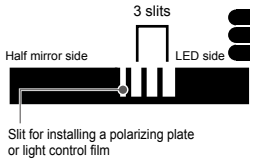
* The LFV3-34/35/40/CP-13/CP-18 does not support this feature.

Regarding the default diffusion plate

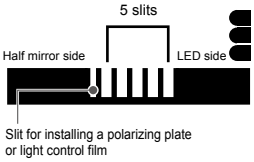
LFV3-35/50/50X100/70/100/130/200	
Red light, white light	Blue light
Diffusion plate (Light color) is default	Diffusion plate (Deep color) is default
Transmittance rate: High	Transmittance rate: Low (End of the model name: -UF)

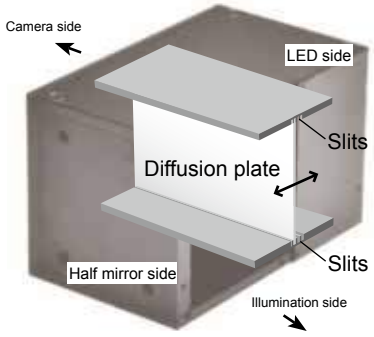
Position adjustment slit

For the LFV3-50/50X100/70



For the LFV3-100/130/200





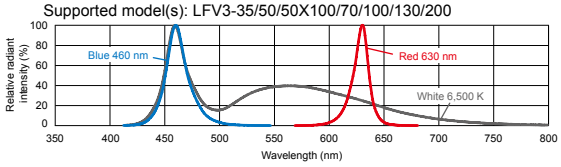
* Conceptual image

For details about replacing the diffusion plate or adjusting the position, refer to the "Instruction Guide" included with the product.

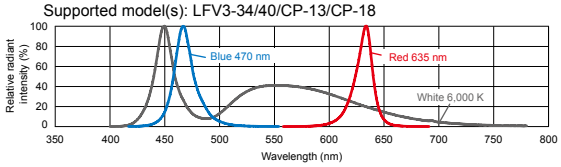
LED properties

Light spectrum

Supported model(s): LFV3-35/50/50X100/70/100/130/200



Supported model(s): LFV3-34/40/CP-13/CP-18



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

LFV3 series

Refer to our website for product details.

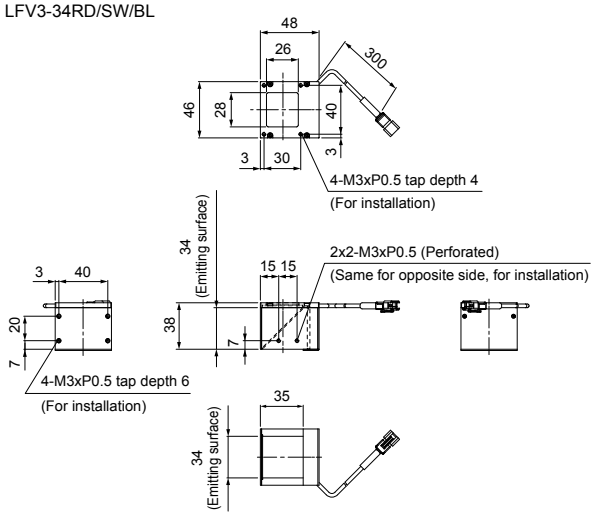
CCS LFV3 ▶ Search

Use a search engine.

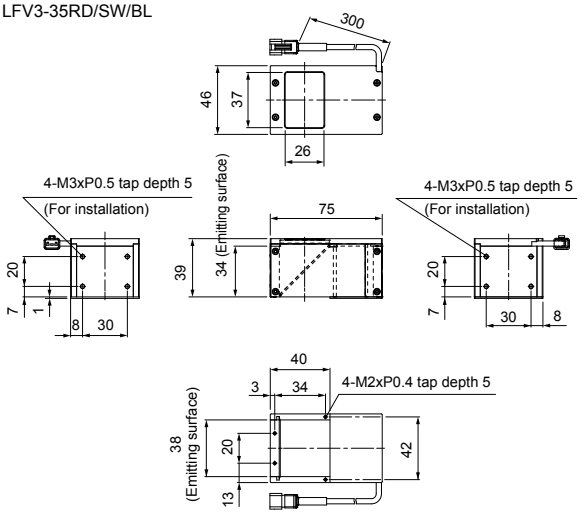
You can also use your smartphone or cell phone.

Dimensions (mm)

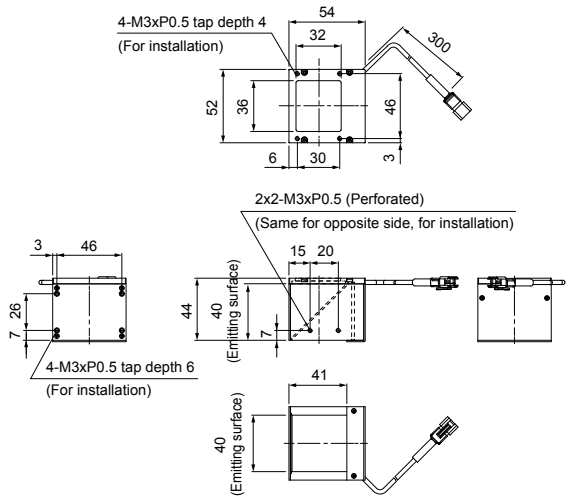
LFV3-34RD/SW/BL



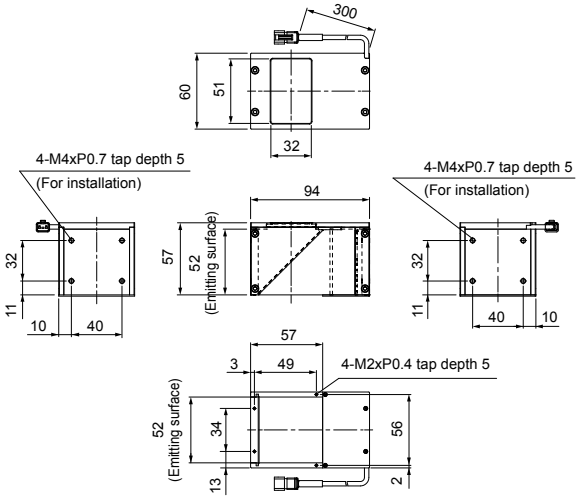
LFV3-35RD/SW/BL



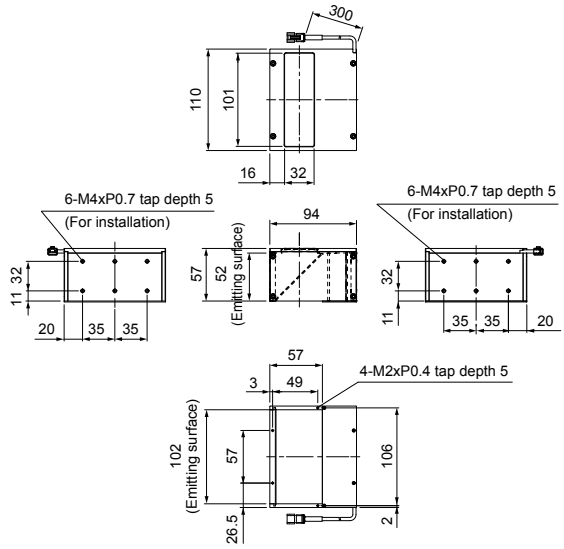
LFV3-40RD/SW/BL



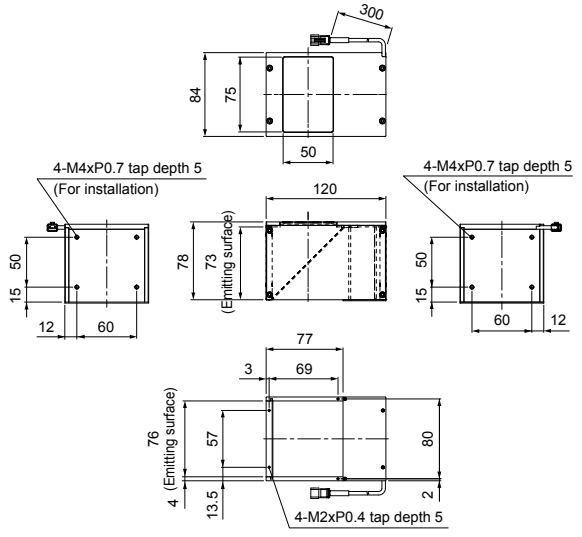
LFV3-50RD/SW/BL



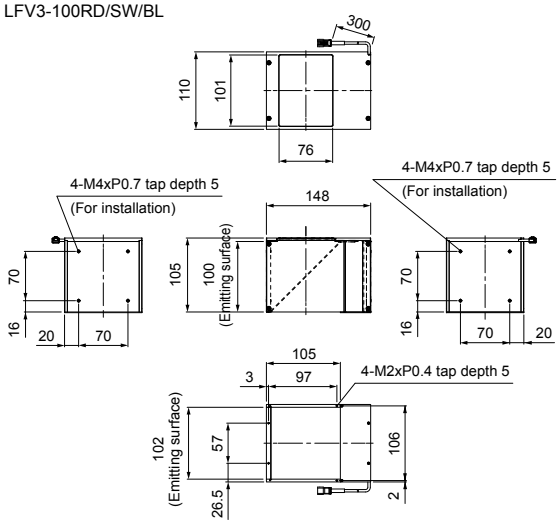
LFV3-50X100RD/SW/BL



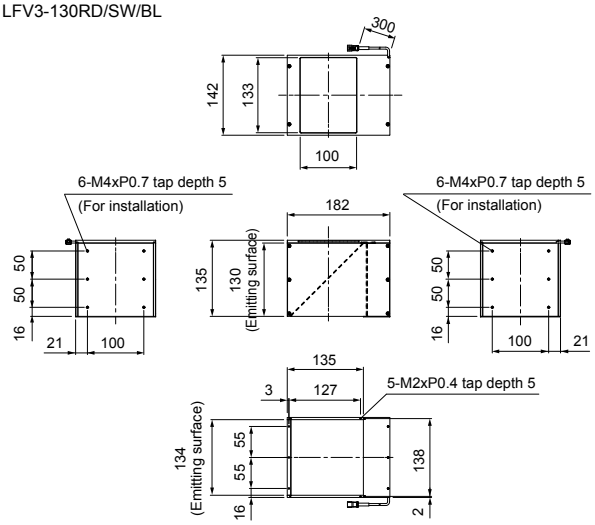
LFV3-70RD/SW/BL



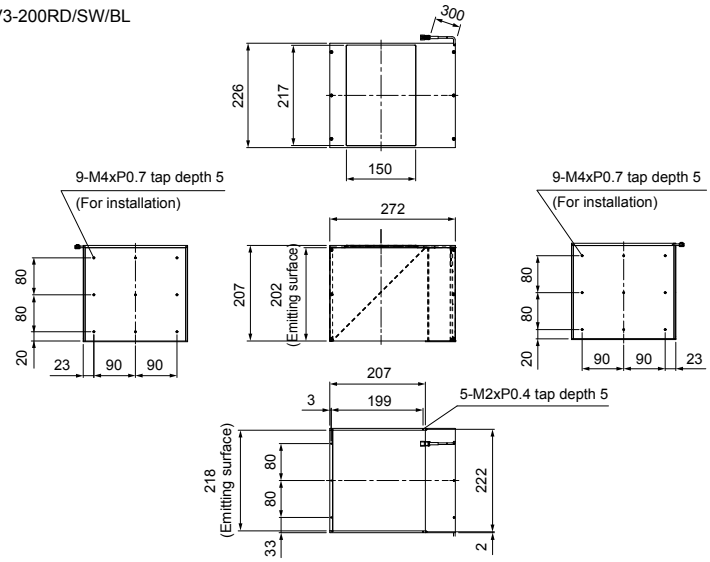
LFV3-100RD/SW/BL



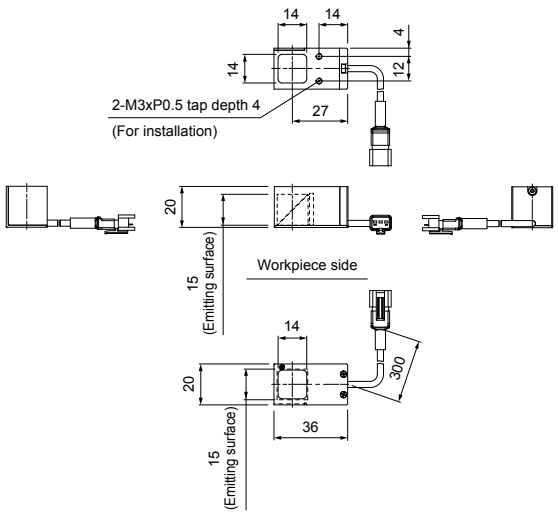
LFV3-130RD/SW/BL



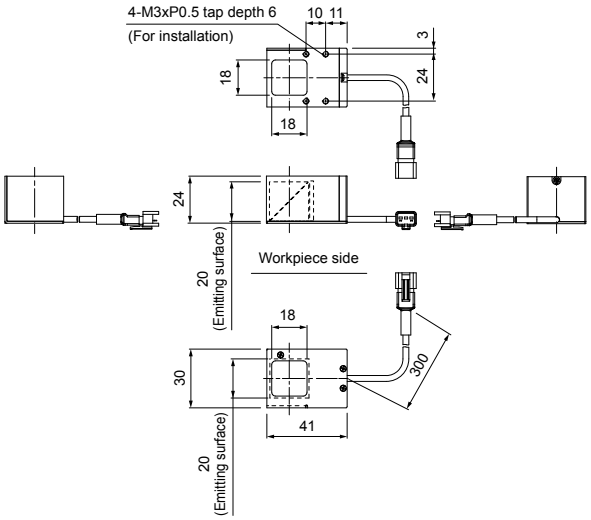
LFV3-200RD/SW/BL



LFV3-CP-13RD/SW/BL



LFV3-CP-18RD/SW/BL



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Coaxial Lights
MSU series

Refer to our website for product details.
CCS MSU ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides light with high parallelism using original lighting technology

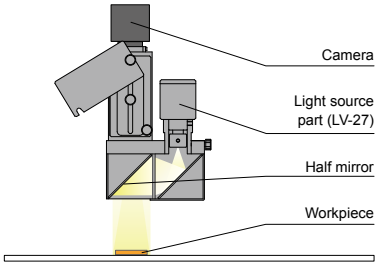
Applications Inspection for fine damage on glossy surfaces and character recognition on glossy surfaces, etc.

Characteristics

Provides collimated lighting created using a special lens. It is perfect for extracting tiny scratches, damage, or dents on mirror surfaces. The included lens can be used for convergent light.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

Example configuration (MSU-10)



Imaging example: Exterior imaging of button batteries

Workpiece: Button battery

■LED Coaxial Light

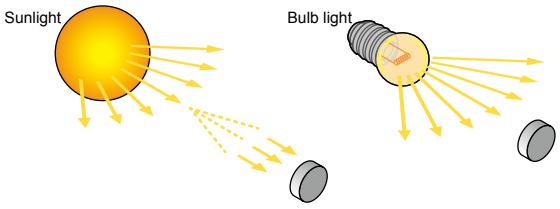
With the Coaxial Light, it is possible to reduce surface reflection and form an image of the engraved text.

■MSU-30X20RD2

Not only is the image of the engraved text more clear than with the Coaxial Light, fine differences in the surface can also be imaged.

Collimated light optical unit MSU series

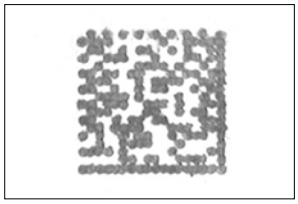
Light illuminated from a normal light source moves in a straight line while radially diffusing. Collimated light refers to light where one point of light illuminated from a source at infinitely far distance, such as the sun, hits any surface from the same angle. The MSU series is an optical unit developed by applying the principle of collimated light.



Extracts damage, scratches, and dents on mirror workpieces

This optical unit is effective for inspections that were difficult using conventional image processing, such as extracting shallow and tiny scratches, damage and dents, and reading barcodes on mirror workpieces.

Imaging of 2-dimensional code



Using an LED Light allows for high performance, stable, and low-cost imaging. This is an applied product that melds lighting technology design with optical design.

For details about the procedure for usage, refer to the material "How to Use the MSU Series" on our website.
You can download this information from the product website page.

We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Lineup

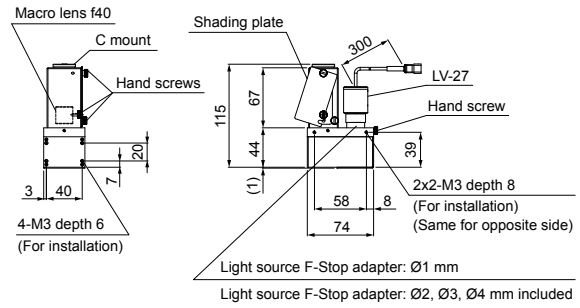
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
MSU-10RD2	Red	24 V / 0.8 W	630 nm	–	PD3, CC-ST-1024, PSB, POD*3	275 g
MSU-10SW2	White	24 V / 0.4 W	5,500 K			
MSU-10BL2	Blue	24 V / 0.4 W	470 nm			
MSU-30RD2	Red	24 V / 0.8 W	630 nm			2,000 g
MSU-30BL2	Blue	24 V / 0.4 W	470 nm			
MSU-30X20RD2	Red	24 V / 0.8 W	630 nm		PD3*1, CC-ST-1024, PSB, POD*3	540 g
MSU-30X20SW2	White	24 V / 0.5 W	5,500 K			
MSU-30X20BL2	Blue	24 V / 0.5 W	470 nm			
MSU-30X20GR2	Green	24 V / 0.5 W	525 nm			
MSU-100RD2	Red	24 V / 0.8 W	630 nm		PD3, CC-ST-1024, PSB, POD*3	9,920 g
MSU-100SW2	White	24 V / 0.4 W	5,500 K			
MSU-130RD2	Red	24 V / 0.8 W	630 nm			12,700 g
MSU-130SW2-CL	White	24 V / 0.4 W 24 V / 4.5 W	5,500 K		PD3*2, PSB*2, POD*3	13,000 g

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

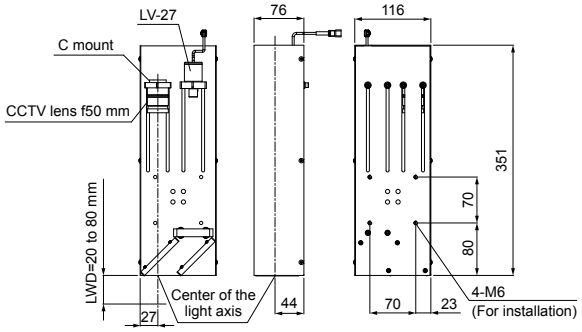
*1: Cannot be used with the Digital Control Unit PD3-5024-4/10024-8 series.
*2: The MSU-130SW2-CL is equipped with two Light Units. Use a 2-channel Control Unit.
*3: For information on the combination of Light Units and POD-series Control Unit, please refer to our website. http://www.ccs-grp.com/lnk/qr/pod

Dimensions (mm)

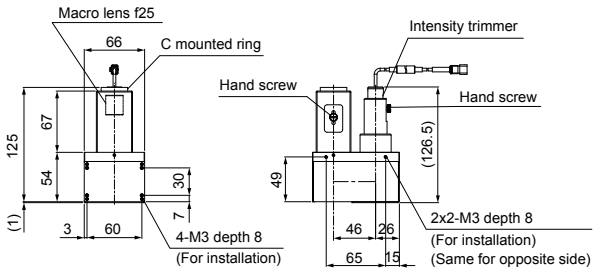
MSU-10RD2/SW2/BL2



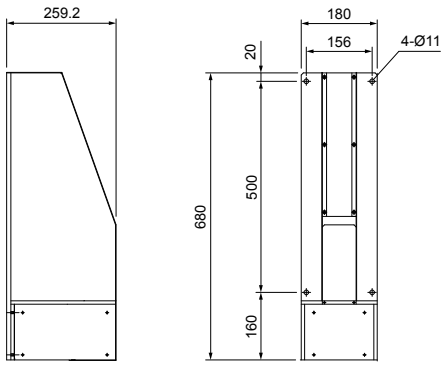
MSU-30RD2/BL2



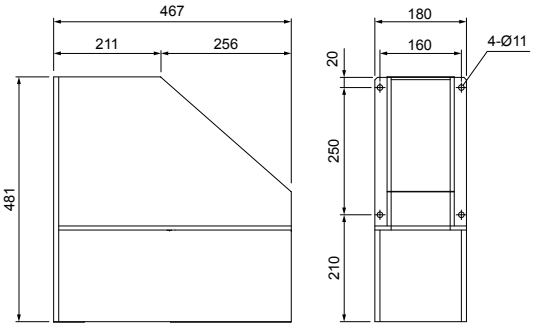
MSU-30X20RD2/SW2/BL2/GR2



MSU-100RD2/SW2



MSU-130RD2/SW2-CL



Reference chart for the field of vision (Estimate)
Using a 1/3 inch sensor camera

Model name	Field of vision	WD
MSU-10	7.5 mm	58 mm
MSU-30	18.7 mm	50 mm
MSU-30X20	15 mm	24 mm
MSU-100	60 mm	50 mm

* Regarding reference field of vision
This is an estimate to help you select a Light Unit, and individual units may vary from the data listed above depending on your imaging conditions.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

You can inquire using our website. Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here. http://www.ccs-grp.com/contact/

Coaxial Lights
MFU series

Refer to our website for product details.
CCS MFU ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides light with high parallelism using original lighting technology

MFU-34X30-BL

MFU-54X40-BL

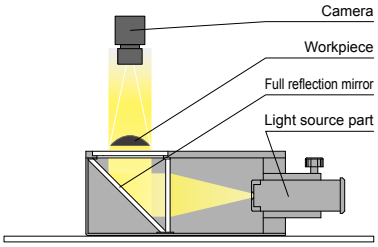
Applications Dimension measuring, dimension measuring for cylindrical objects, and inspection for fine burrs, etc.

Characteristics

We achieved collimated lighting through unique lighting technology.
It allows for highly-accurate imaging that prevents light from wrapping around the workpiece. It allows for convergence to match the imaging-side lens in use.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

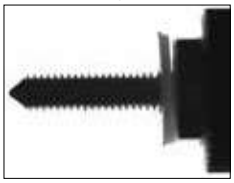
Example configuration (MFU-34×30)



Imaging example: Exterior imaging of a screw

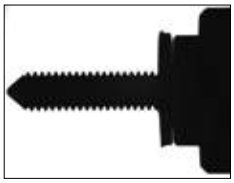
Workpiece: Knurled screw

■LED Flat Light



With a Flat Light, the illuminated light wraps around the workpieces, making it difficult to emphasize the edges.

■MFU-34X30-BL



It prevents the illuminated light from wrapping around, allowing for the edges to be emphasized.

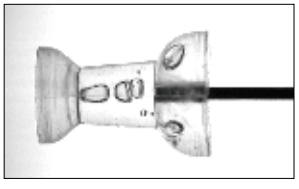
Comparison of imaging with a Flat Light and Collimated Light

Imaging example: Exterior imaging of a push pin

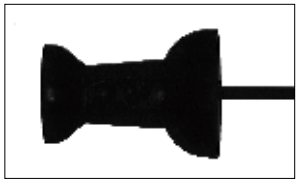
■Workpiece image

Push pin

■LED Flat Light



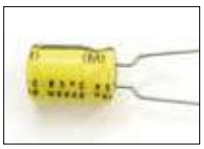
■MFU-34X30-BL



When the user looks at a clear resin push pin with diffused light from a Flat Light illuminated from the rear, the clear part appears clear. However, with collimated light, the light is refracted by the clear resin, and the whole pin appears black.

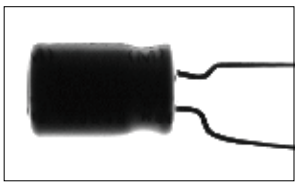
Imaging example: Imaging of the exterior and dimensions of a condenser

■Workpiece image

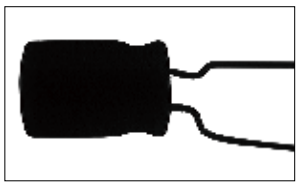


Condenser

■LED Flat Light



■MFU-34X30-BL



If you view it with diffused light of Flat Light illuminated from the rear, the light wraps around the side of the condenser body. However, with collimated light, that wrap around is prevented and the thickness of the wires is also imaged evenly.

We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Lineup

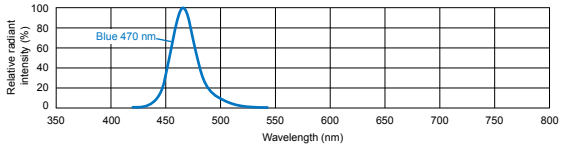
Model name	LED color	Power consumption	Peak wavelength	Options	Recommended Control Units	Weight
MFU-34X30-BL	Blue	12 V / 0.3 W	470 nm	–	PD2* / PSB* / PTU2*	185 g
MFU-54X40-BL	Blue	12 V / 0.3 W	470 nm			350 g

* Because the MFU series is for 12 V input, please select a Control Unit with a 12 V output.

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

LED properties

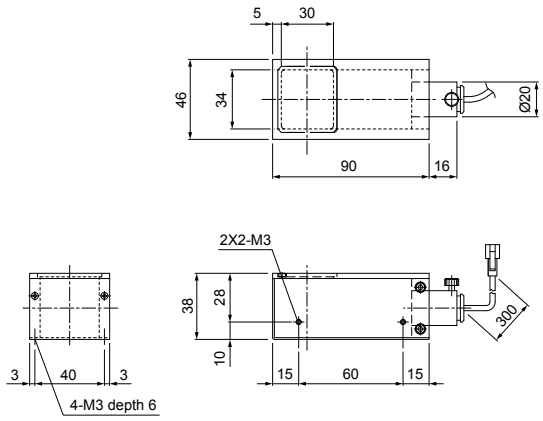
Light spectrum



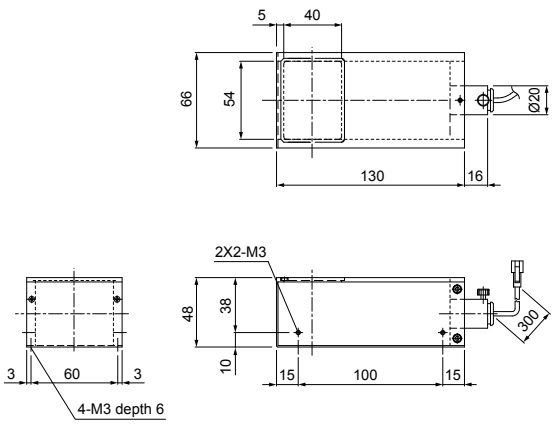
Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Dimensions (mm)

MFU-34X30-BL



MFU-54X40-BL



Regarding the procedure for usage

1) Set the item to be inspected and determine the imaging range.
2) Set this product and determine the distance between the lens and the camera (LWD).
3) Align this product's light axis with the center of the imaging field of vision.
4) Adjust intensity.

For details about the procedure for usage, refer to the material "How to Use the MFU Series" on our website.
You can download this information from the product website page.

Ultraviolet Lights
UV2 series

Refer to our website for product details.
CCS UV2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

UV Lights that use high output UV-LEDs


LDR2-100UV2-365-W


HLV2-24UV2-365


LDR2-60UV2-365-W


LN-128UV2-365
(Convergent type)


LDL-138X12UV2-365

Applications Inspection for detecting seal material through fluorescent excitation, reading invisible code, inspections using differences in spectral reflectivity, and inspections using differences in scattering rates, etc.

For fluorescent observation and observation using scattering rates

Using high output UV-LEDs, we significantly increased output compared to conventional products.

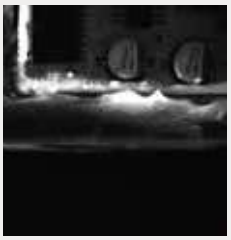
Comparison of imaging with conventional product

Imaging example	Adhesive application inspection
Workpiece	Circuit board

Conventional product (LDR2-90UV365)


The conventional product lacks output and fluorescent observation is difficult.

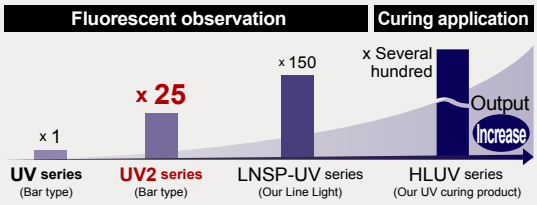
LDR2-100UV2-365-W


The increased output of the high output UV Light allows for fluorescent observation.

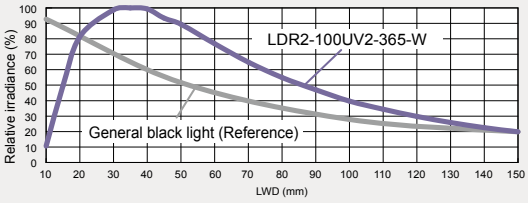
Using high output UV-LEDs

The high output UV illumination allows for stable fluorescent observation. Ring, bar, and spot formats are available.

Image comparing output of UV Lights by application



Comparison of output between a high output UV Light and a black light



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

Custom orders

Please contact your CCS sales representative.

E.g.: Different shape

Format/ material

Created a format to match the needs

Customizable items

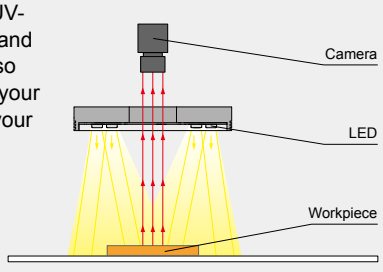
External/internal diameter | Wavelength/ color | Increase output | Cable length | Illuminating angle | Format/ material | Connector format | Installation/ mounting

Etc.

Example configuration

Ring Lights that use high output UV-LEDs. Bar types and spot types are also available. Select your format to match your needs.

LDR2-100UV2-365-W



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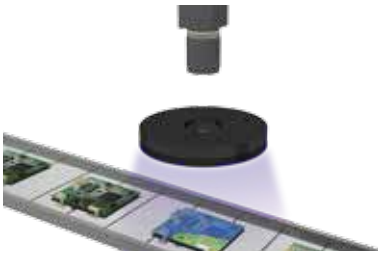
http://www.ccs-grp.com/dl/

Imaging example : Imaging of the application of coating material on a circuit board



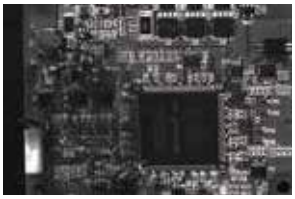
Description	Visual inspection
Workpiece	Circuit board
Before the proposal	LED Ultraviolet Light
After the proposal	LDR2-100UV2-365-W
Result	Fluorescent excitation via ultraviolet lighting

Workpiece image

Circuit board

* This workpiece was processed by CCS for sample imaging.

General fluorescent lamp



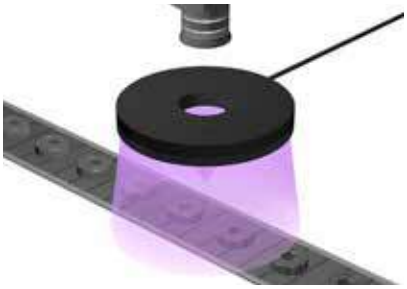
With a general fluorescent lamp, fluorescent observation is difficult.

LDR2-100UV2-365-W

With a high output UV Light, fluorescent observation is possible.

* Use an optional filter for imaging with increased contrast.

Imaging example : Imaging of grease application on a bearing



Description	Visual inspection
Workpiece	Bearing
Before the proposal	LED visible light lighting
After the proposal	LDR2-100UV2-365-W
Result	Fluorescent excitation via ultraviolet lighting

Workpiece image

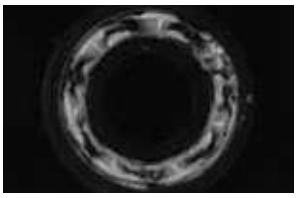
Bearing

* This workpiece was processed by CCS for sample imaging.

LED visible light lighting

With white light, it is difficult to capture the application of the grease.

LDR2-100UV2-365-W



With a high output UV Light, fluorescent observation is possible.

* Use an optional filter for imaging with increased contrast.

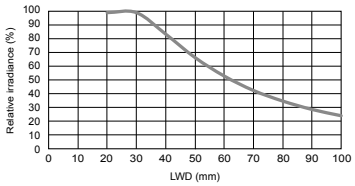
Data: Relative irradiance graph/Uniformity (Representative example)

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

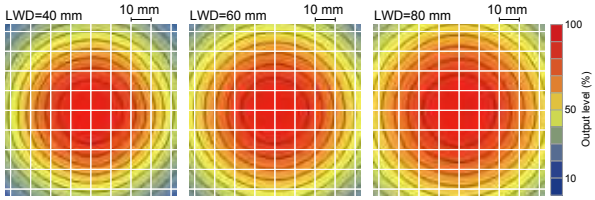
LDR2-60UV2-365-W

Relative irradiance graph *1
(LWD Characteristics) *2

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



Uniformity (Relative irradiance)



UV2 series

Refer to our website for product details.

CCS UV2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

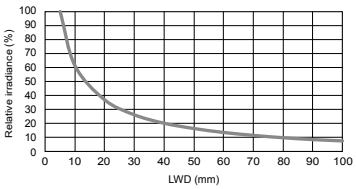
Data: Relative irradiance graph/Uniformity (Representative example)

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

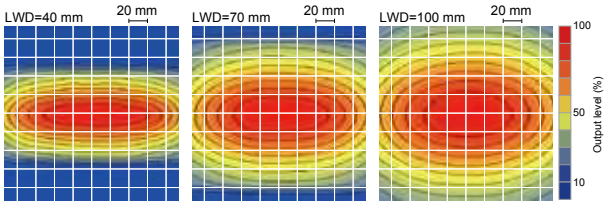
LDL-205X12UV2-365

Relative irradiance graph *1
(LWD Characteristics) *2

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



Uniformity (Relative irradiance)

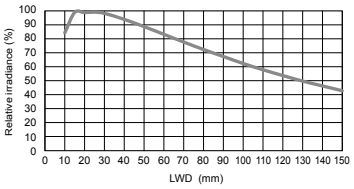


LN-195UV2-365

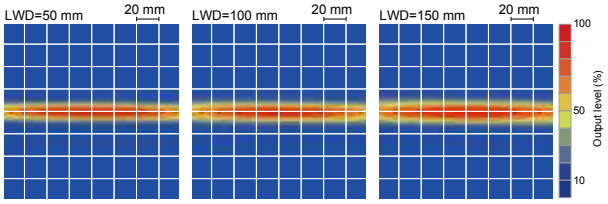
(Convergent type)

Relative irradiance graph *1
(LWD Characteristics) *2

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



Uniformity (Relative irradiance)



Cautionary information regarding UV products

- Do not expose your eyes or skin to direct UV irradiation.
- When using an UV illumination, be sure to wear UV blocking eye wear and avoid looking at irradiating parts (emitting parts).
- Do not turn on UV-LED irradiating parts (emitting parts) if they are facing someone's eyes.
- Wear long sleeves and gloves to protect your skin from UV irradiation.
- Thoroughly educate all those involved near the product about the dangers of UV LEDs.

(E.g.) UV blocking eye wear

Options

Blocks light with a wavelength of 420 nm or lower, transmits light with a longer wavelength.

Ultraviolet cutting filter
L42 series

Model name	Size
L42-25	M25.5 P0.5
L42-27	M27.0 P0.5
L42-30	M30.5 P0.5
L42-40	M40.5 P0.5
L42-46	M46.0 P0.75

▶ P.223

Transmits light with wavelength range of approx. 280 nm to 380 nm, centered around 340 nm.

Ultraviolet transmission filter
U340 series

Model name	Size
U340-25	M25.5 P0.5
U340-27	M27.0 P0.5
U340-30	M30.5 P0.5
U340-40	M40.5 P0.5
U340-46	M46.0 P0.75

▶ P.223

Lineup

Series	Model name	LED color	Power consumption	Peak wavelength	Options	Recommended Control Units	Weight
LDR2	LDR2-60UV2-365-W	Ultraviolet	24 V / 7.6 W	365 nm	Ultraviolet cutting filter Ultraviolet transmission filter	PD3 CC-ST-1024* PSB * Can only use the 60 size.	170 g
	LDR2-100UV2-365-W		24 V / 23 W				250 g
LDL	LDL-71X12UV2-365	Ultraviolet	24 V / 7.6 W	365 nm		PD3 CC-ST-1024* PSB * Can only use the 71 x 12 size.	300 g
	LDL-138X12UV2-365		24 V / 16 W				500 g
	LDL-205X12UV2-365		24 V / 23 W				700 g
LN	LN-61UV2-365	Ultraviolet	24 V / 7.6 W	365 nm		PD3 CC-ST-1024* PSB * Can only use the 61 size.	450 g
	LN-128UV2-365		24 V / 16 W				750 g
	LN-195UV2-365		24 V / 23 W				1,050 g
HLV2	HLV2-24UV2-365	Ultraviolet	0.7 A / 3.2 W	365 nm		PD3 PJ	50 g

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* Please inquire if you would like to use in combination with a Strobe Control Unit (overdrive type).

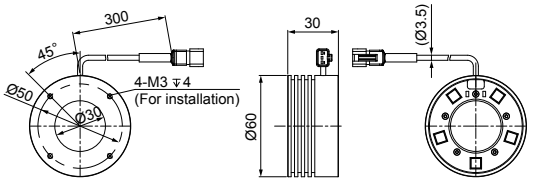
We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

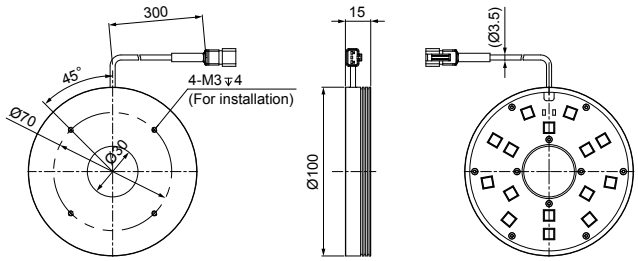
Dimensions (mm)

Ring Lights

LDR2-60UV2-365-W

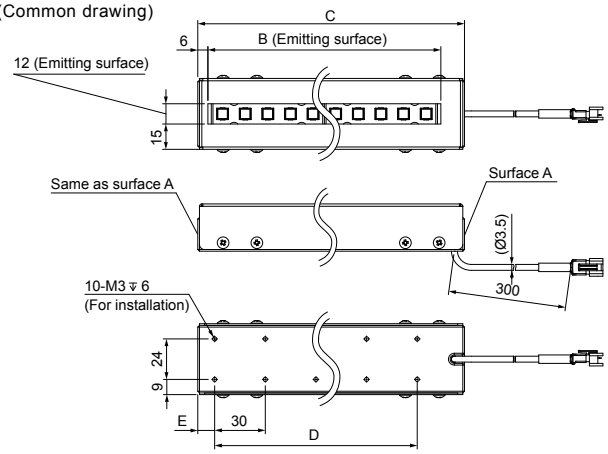


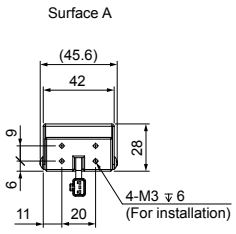
LDR2-100UV2-365-W



Bar Lights

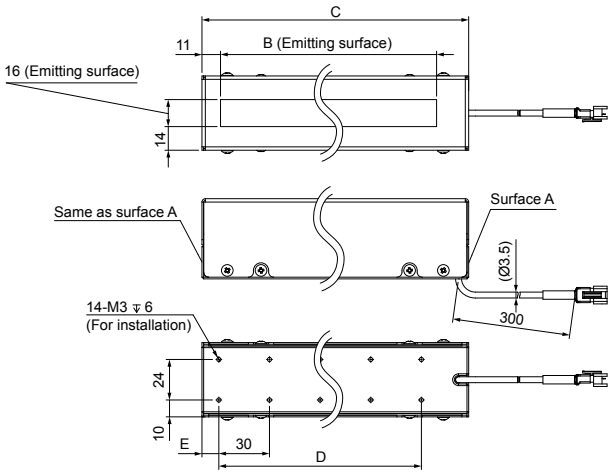
(Common drawing)

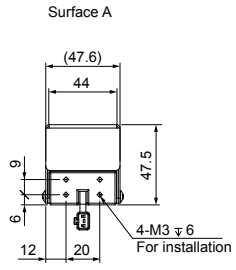




Model name	B	C	D	E
LDL-71X12UV2-365	71	91	P30x2=60	10
LDL-138X12UV2-365	138	158	P30x4=120	10
LDL-205X12UV2-365	205	225	P30x6=180	20

Convergent type (Common drawing)

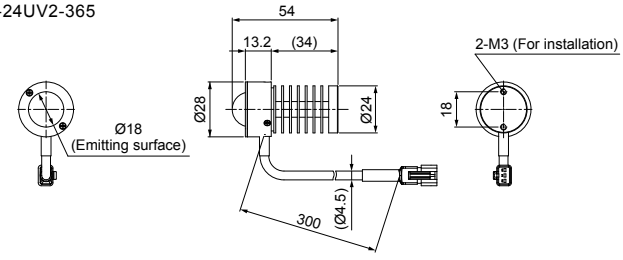




Model name	B	C	D	E
LN-61UV2-365	61	91	P30x2=60	10
LN-128UV2-365	128	158	P30x4=120	10
LN-195UV2-365	195	225	P30x6=180	20

Spot Lights

HLV2-24UV2-365



You can change the connectors of the Light Unit cable (except for the HLV2-24UV2-365). Choose between M12 connectors and flying leads. Refer to P.123 for details.

Ultraviolet Lights
UV series

Refer to our website for product details.
CCS UV ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Varied Light Unit lineup using original UV-LEDs


LDR2-100UV365-LA


LDR2-90UV365


LDQ-100UV365


LN-200UV365


LDR-75UV365-LA-1


SQR-56UV365


LDL-82X15UV365


LDL-42X15UV365


LSP-41UV365

Applications	Inspection for detecting seal material through fluorescent excitation, reading invisible code, inspections using differences in spectral reflectivity, and inspections using differences in scattering rates, etc.

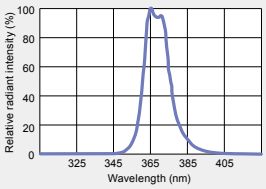
Uses original UV-LEDs

Uses LEDs with our unique spark prevention mechanism

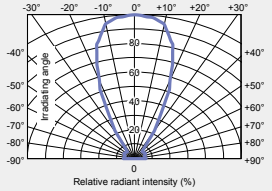
Because they have a steel alloy cap, many ultraviolet LEDs are susceptible to static electricity or impact. In particular, dead LEDs due to sparks occurring from contact with metal shards have been a major issue. Our company's original ultraviolet LEDs successfully solved this problem through our unique spark prevention mechanism. Compared to the conventional products, we significantly increased our "safety" and "reliability."

Peak wavelength of 365 nm and directional characteristics of ±20°

Light spectrum of the UV-LED



Directional characteristics of the UV-LED



Our original ultraviolet LEDs have a peak wavelength of 365 nm and directional characteristics of ±20°. Using the mono-wavelength, a characteristic of LEDs, allows for stable imaging over a long period of time that captures the workpiece's characteristics more accurately than using a black light. Furthermore, our rich lineup provides optimal Light Units depending on the inspected object, inspecting environment, and optical system.

Lineup

Series	Model name	LED color	Power consumption *1		Peak wavelength	Options	Recommended Control Units	Weight	Dimensions
			Earlier than July 2014	After July 2014					
LDR2	LDR2-32UV365	Ultraviolet	24 V / 0.4 W	24 V / 0.3 W	365 nm	Ultraviolet cutting filter Ultraviolet transmission filter	PD3 CC-ST-1024* PSB POD*2 * Cannot be used with the LDR2-208UV365-LA that was manufactured before July 2014.	30 g	1
	LDR2-42UV365		24 V / 0.8 W	24 V / 0.6 W				50 g	
	LDR2-50UV365		24 V / 1.2 W	24 V / 0.9 W				50 g	
	LDR2-70UV365		24 V / 3.1 W	24 V / 2.3 W				130 g	2
	LDR2-90UV365		24 V / 3.8 W	24 V / 2.8 W				170 g	1
	LDR2-90-30UV365		24 V / 6.1 W	24 V / 4.5 W				220 g	
	LDR2-120UV365		24 V / 9.5 W	24 V / 7.0 W				510 g	3
LDR2-LA	LDR2-74UV365-LA	Ultraviolet	24 V / 1.9 W	24 V / 1.4 W	365 nm			90 g	4
	LDR2-100UV365-LA		24 V / 4.6 W	24 V / 3.4 W				170 g	5
	LDR2-132UV365-LA		24 V / 6.9 W	24 V / 5.0 W				270 g	
	LDR2-170UV365-LA		24 V / 9.9 W	24 V / 7.3 W				350 g	
	LDR2-208UV365-LA		24 V / 12 W	24 V / 8.4 W				380 g	
LDR-LA-1	LDR-75UV365-LA-1	Ultraviolet	24 V / 1.6 W	24 V / 1.2 W	365 nm			70 g	6
	LDR-96UV365-LA-1		24 V / 2.3 W	24 V / 1.7 W				100 g	7
	LDR-146UV365-LA-1		24 V / 3.1 W	24 V / 2.3 W				160 g	
	LDR-176UV365-LA-1	Ultraviolet	24 V / 3.8 W	24 V / 2.8 W				200 g	
	LDR-206UV365-LA-1		24 V / 4.6 W	24 V / 3.4 W				220 g	

*1 The power consumption varies according to the production date. Refer to the power consumption given by the label tag of the product.

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*2: 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

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

Series	Model name	LED color	Power consumption *1		Peak wavelength	Options	Recommended Control Units		Weight	Dimensions
			Earlier than July 2014	After July 2014						
SQR	SQR-56UV365	Ultraviolet	24 V / 1.6 W	24 V / 1.2 W	365 nm	Ultraviolet cutting filter Ultraviolet transmission filter	PD3 PSB	CC-ST-1024 POD*2	80 g	8
LDL	LDL-34X8UV365	Ultraviolet	24 V / 0.4 W	24 V / 0.3 W	365 nm				15 g	9
	LDL-42X15UV365		24 V / 0.8 W	24 V / 0.6 W					30 g	10
	LDL-74X27UV365		24 V / 3.1 W	24 V / 2.3 W					95 g	11
	LDL-82X15UV365		24 V / 1.6 W	24 V / 1.2 W					45 g	12
	LDL-130X15UV365		24 V / 2.3 W	24 V / 1.7 W					85 g	
	LDL-180X16UV365		24 V / 3.8 W	24 V / 2.8 W					110 g	
LDQ	LDQ-60-25UV365	Ultraviolet	24 V / 1.6 W	24 V / 1.2 W	365 nm				60 g	13
	LDQ-78UV365		24 V / 1.6 W	24 V / 1.2 W					100 g	14
	LDQ-100UV365		24 V / 3.1 W	24 V / 2.3 W					330 g	15
	LDQ-150UV365		24 V / 6.1 W	24 V / 4.5 W					490 g	16
	LDQ-200UV365		24 V / 9.1 W	24 V / 6.7 W					790 g	17
LN	LN-200UV365	Ultraviolet	24 V / 1.9 W	24 V / 1.4 W	365 nm				400 g	18
LSP	LSP-41UV365	Ultraviolet	24 V / 1.2 W	24 V / 0.9 W	365 nm				115 g	19

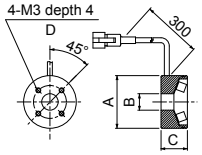
*1: The power consumption varies according to the production date. Refer to the power consumption given by the label tag of the product.

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*2: 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

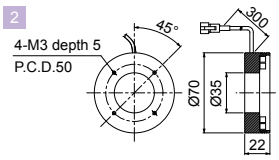
Dimensions (mm)

1



Model name	A	B	C	D
LDR2-32UV365	Ø32	Ø10	16	P.C.D.20
LDR2-42UV365	Ø42	Ø18	18	P.C.D.28
LDR2-50UV365	Ø50	Ø28	16	P.C.D.40
LDR2-90UV365	Ø90	Ø50	20	P.C.D.70
LDR2-90-30UV365	Ø90	Ø30	20	P.C.D.70

2



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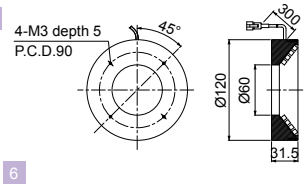

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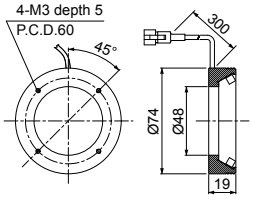

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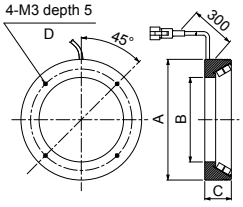
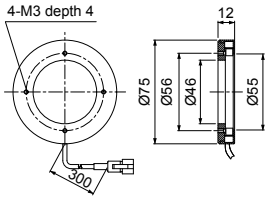


Model name	A	B	C	D
LDR2-100UV365-LA	Ø100	Ø70	22	P.C.D.84
LDR2-132UV365-LA	Ø132	Ø96	22	P.C.D.116
LDR2-170UV365-LA	Ø170	Ø134	22	P.C.D.154
LDR2-208UV365-LA	Ø208	Ø174	22	P.C.D.186

6



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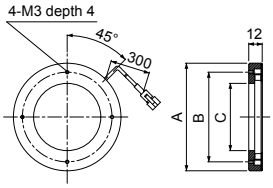
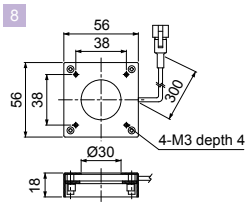


Model name	A	B	C
LDR-96UV365-LA-1	Ø96	Ø80	Ø60
LDR-146UV365-LA-1	Ø146	Ø130	Ø110
LDR-176UV365-LA-1	Ø176	Ø160	Ø140
LDR-206UV365-LA-1	Ø206	Ø190	Ø170

8



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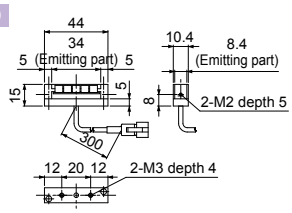

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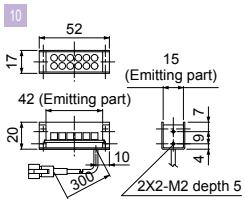

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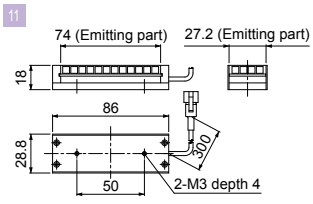

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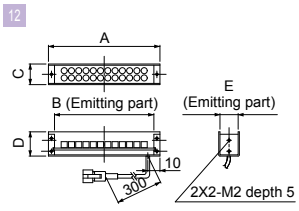
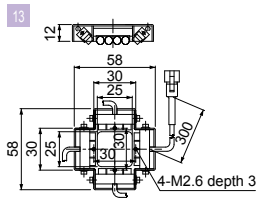


Model name	A	B	C	D	E
LDL-82X15UV365	92	82	17	20	15
LDL-130X15UV365	140	130	17	21	15
LDL-180X16UV365	191.4	181.4	18	21	16

13



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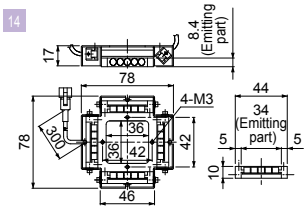

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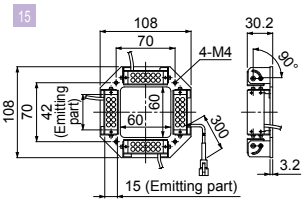

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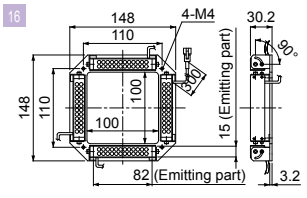

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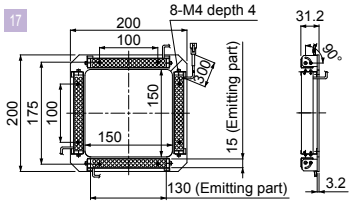

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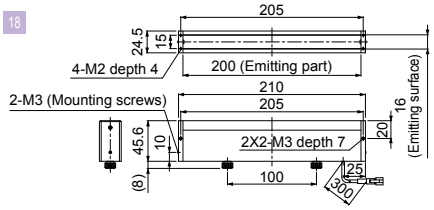

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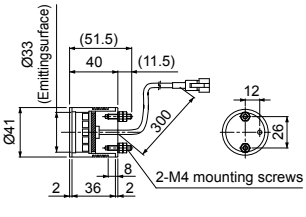


You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

You can inquire using our website.

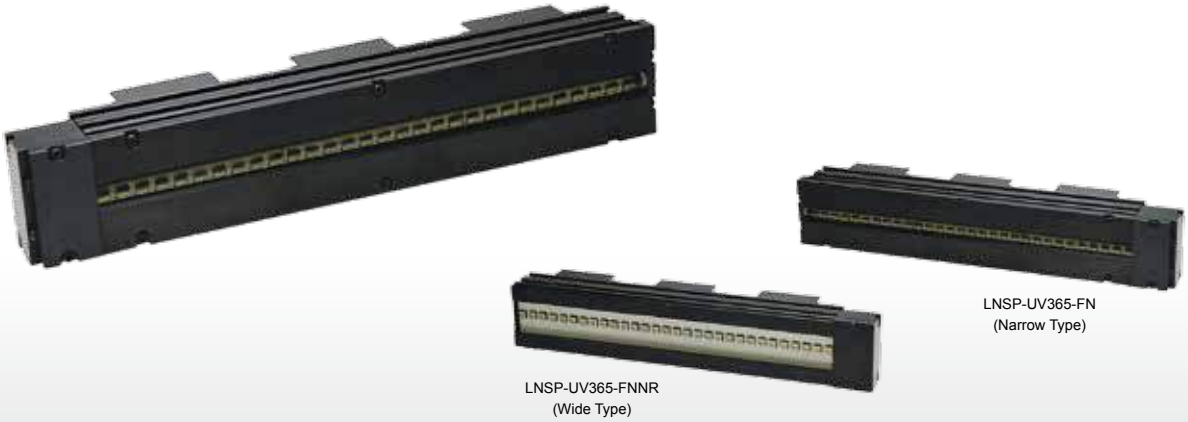
Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries

Inquire on our website here.
http://www.ccs-grp.com/contact/

Ultraviolet Line Lights
LNSP-UV-FN series

Refer to our website for product details.
CCS LNSP-UV-FN ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

UV Line Lights that use high-output UV-LEDs



LNSP-UV365-FNNR (Wide Type)
LNSP-UV365-FN (Narrow Type)

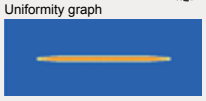
Applications Inspection for detecting seal material through fluorescent excitation, inspections using differences in spectral reflectivity, and inspections using differences in scattering rates, etc.

Narrow type that can achieve convergent illumination

By using a rod lens, the Light Unit concentrates illumination in a narrow range. There is little loss of radiation output, allowing for convergent illumination.

Characteristics of the narrow type

Uniformity graph



Output comparison
Conventional product (LDL-74x27UV365)
LNSP-UV365-FN Approx. 150x
* Camera output varies based on the camera's spectral sensitivity.

Imaging example	Imaging of invisible code
Workpiece	Plastic plate

White Bar Light

Fluorescent observation is difficult with white light.

LNSP-300UV365-FN

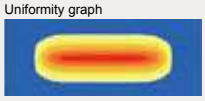
Fluorescent observation for the invisible code is possible.

Wide type that can achieve diffused illumination

The illuminated range is wide, allowing for a broad range to be illuminated.

Characteristics of the wide type

Uniformity graph



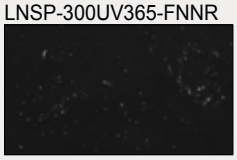
Output comparison
Conventional product (LDL-74x27UV365)
LNSP-UV365-FNNR Approx. 40x
* Camera output varies based on the camera's spectral sensitivity.

Imaging example	Imaging of foreign material on paper
Workpiece	White paper (Tissue)

White Bar Light

Fluorescent observation is difficult with white light.

LNSP-300UV365-FNNR



Fluorescent observation for foreign material, such as dust, is possible.

Custom orders

Please contact your CCS sales representative.

E.g.: Different wavelength

Wavelength

Equipped with 385 nm LEDs

Customizable items

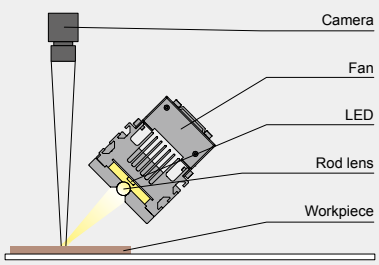
External/internal diameter | Wavelength/color | Increase output | Cable length | Illuminating angle | Format/material | Connector format | Installation/mounting

Etc.

Example configuration

By using a rod lens, the Light Unit concentrates illumination in a narrow range. High output UV Line Light perfect for UV excitation.

LNSP-UV365-FN (Narrow type)



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http://www.ccs-grp.com/dl/

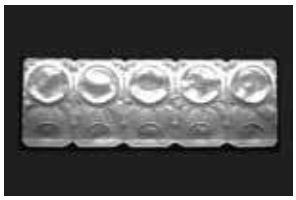
Imaging example : Imaging to detect contact lenses inside packaging

Description	Detection inspection
Workpiece	Contact lenses
Before the proposal	LED visible light lighting
After the proposal	LNSP-300UV365-FNNR
Result	Fluorescent excitation via ultraviolet lighting

Workpiece image

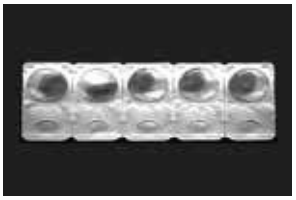
Contact lenses

LED visible light lighting



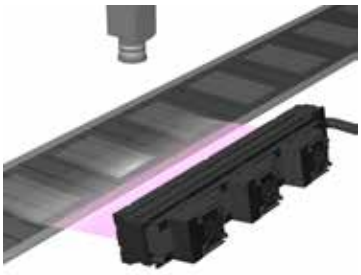
With visible light lighting, it is difficult to detect the contact lenses.

LNSP-300UV365-FNNR



Depending on the type of contact lens, they absorb the ultraviolet wavelength, allowing for the inside of the pack to be imaged.

Imaging example : Imaging of alignment of clear film



Description	Visual inspection
Workpiece	Clear film
Before the proposal	LED visible light lighting
After the proposal	LNSP-300UV365-FN
Result	Fluorescent excitation via ultraviolet lighting

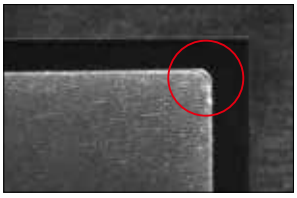
Workpiece image

Clear plate (bottom) and film (top)

LED visible light lighting

With visible light lighting, it is difficult to form an image of the clear film.

LNSP-300UV365-FN



Only the clear film causes scattering, emphasizing the edge.

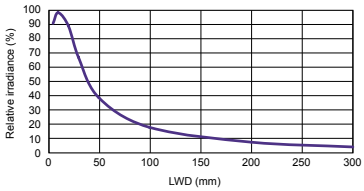
Data: Relative irradiance graph/Uniformity (Representative example)

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

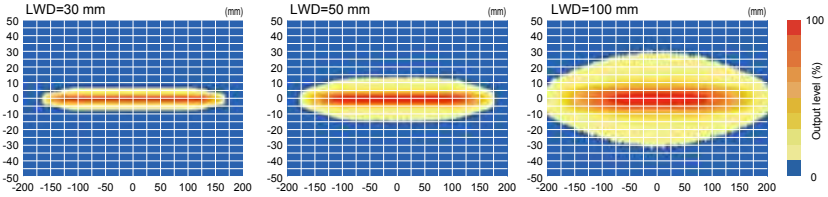
Narrow Type

Relative irradiance graph [*1] (LWD Characteristics) [*2]

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



Uniformity (Relative irradiance)



LNSP-UV-FN series

Refer to our website for product details.

CCS LNSP-UV-FN ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

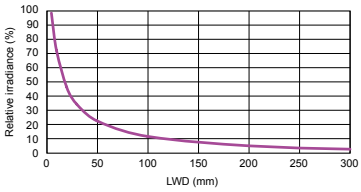
Data: Relative irradiance graph/Uniformity (Representative example)

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

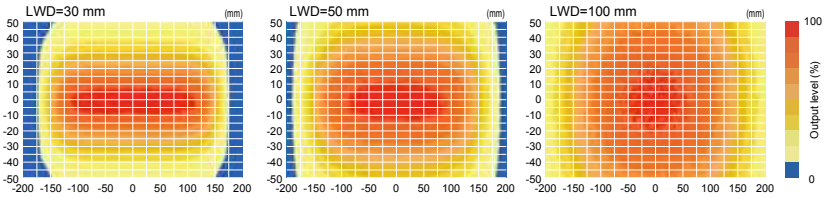
Wide Type

Relative irradiance graph*1 (LWD Characteristics)*2

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



Uniformity (Relative irradiance)



Lineup

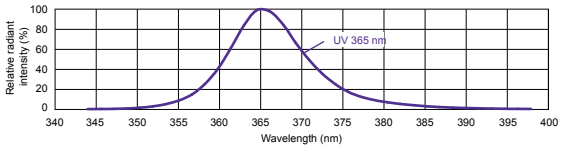
* End of the model name: -FN: Narrow type, -FNNR: Wide type

Model name	LED color	Power consumption	Peak wavelength	Options	Recommended Control Units	Weight
LNSP-100UV365-FN	Ultraviolet	31 W	365 nm	Ultraviolet cutting filter Ultraviolet transmission filter	PSCC-30048(A) PSCC-60048(A)	1,000 g
LNSP-200UV365-FN		61 W				1,400 g
LNSP-300UV365-FN		92 W				1,800 g
LNSP-100UV365-FNNR		31 W				800 g
LNSP-200UV365-FNNR		61 W				1,100 g
LNSP-300UV365-FNNR		92 W				1,400 g

PSCC(A) Series Product Page ▶ P.219

LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Cautionary information regarding UV products

- Do not expose your eyes or skin to direct UV irradiation.
- When using an UV illumination, be sure to wear UV blocking eye wear and avoid looking at irradiating parts (emitting parts).
- Do not turn on UV-LED irradiation parts (emitting parts) if they are facing someone's eyes.
- Wear long sleeves and gloves to protect your skin from UV irradiation.
- Carefully inform all persons in the area around this product of the dangers of UV-LED.

(E.g.) UV blocking eye wear

Options

Blocks light with a wavelength of 420 nm or lower, transmits light with a longer wavelength.

Ultraviolet cutting filter
L42 series

Model name	Size
L42-25	M25.5 P0.5
L42-27	M27.0 P0.5
L42-30	M30.5 P0.5
L42-40	M40.5 P0.5
L42-46	M46.0 P0.75

▶ P.223

Transmits light with wavelength range of approx. 280 nm to 380 nm, centered around 340 nm.

Ultraviolet transmission filter
U340 series

Model name	Size
U340-25	M25.5 P0.5
U340-27	M27.0 P0.5
U340-30	M30.5 P0.5
U340-40	M40.5 P0.5
U340-46	M46.0 P0.75

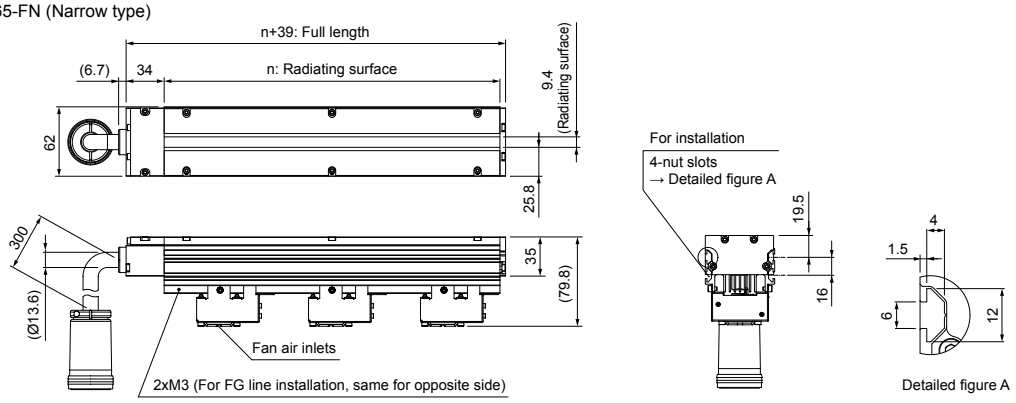
▶ P.223

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

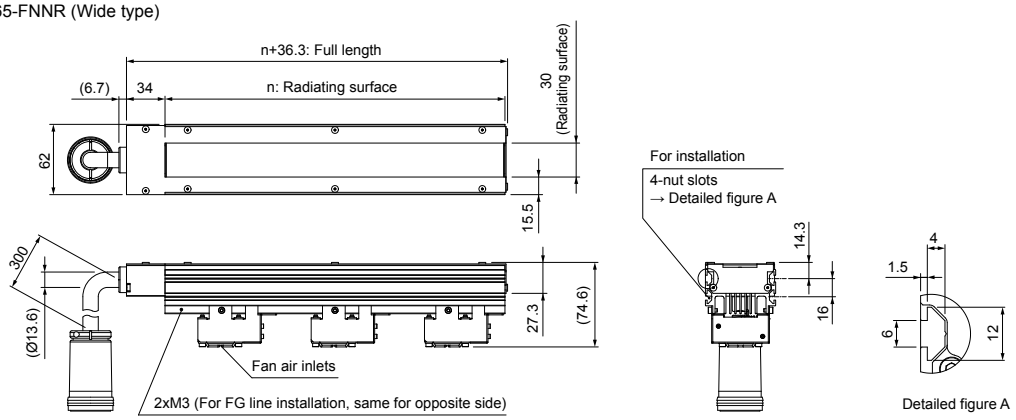
Dimensions (mm)

LNSP-□□□UV365-FN (Narrow type)



Model name	n	Number of cooling fans
LNSP-100UV365-FN	100	1
LNSP-200UV365-FN	200	2
LNSP-300UV365-FN	300	3

LNSP-□□□UV365-FNNR (Wide type)



Model name	n	Number of cooling fans
LNSP-100UV365-FNNR	100	1
LNSP-200UV365-FNNR	200	2
LNSP-300UV365-FNNR	300	3

Extension Cables

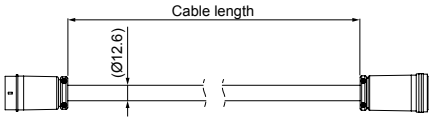
* Necessary when connecting the Light Unit to the recommended Control Unit, the PSCC(A) series.

QCBM

(mm)

Model name	Cable length	Weight	Applicable Control Unit
QCBM-2	2 m	800 g	PSCC-30048(A)
QCBM-3	3 m	1,000 g	
QCBM-5	5 m	1,500 g	
QCBM-10	10 m	2,700 g	
QCBM-20	20 m	5,000 g	

PSCC(A) Series Product Page ▶ P.219

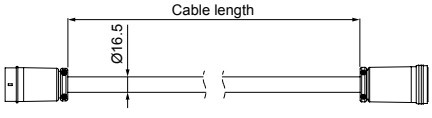


Cable permitted bending radius: 75.6 mm

QCB

Model name	Cable length	Weight	Applicable Control Unit
QCB-2	2 m	1,100 g	PSCC-60048(A)
QCB-3	3 m	1,500 g	
QCB-5	5 m	2,400 g	
QCB-10	10 m	4,600 g	
QCB-20	20 m	8,900 g	

PSCC(A) Series Product Page ▶ P.219



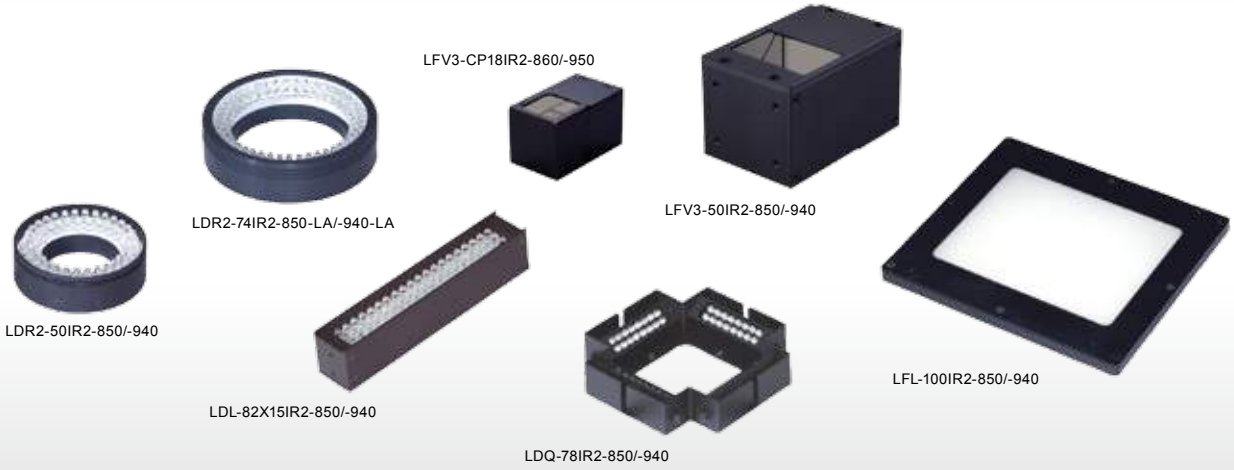
Cable permitted bending radius: 99 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Infrared Lights
IR2 series

Refer to our website for product details.
CCS IR2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Varied Light Unit lineup using IR-LEDs



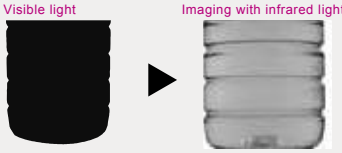
Applications Visual inspection that cancels the surface pattern, inspection penetrating liquid for foreign material inside, inspections using differences in spectral reflectivity, and inspection for the inside of packaged food, etc.

What is Infrared Light?

Infrared light is light that has a wavelength longer than that of visible red light and cannot be seen by the human eye. Compared to visible red light, infrared light has a low scattering rate and high transmittance rate, and therefore is used in imaging which penetrates printed patterns or liquids.

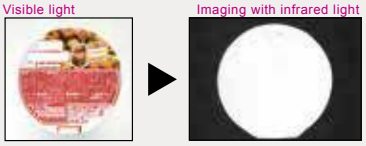
Imaging example using visible and infrared light

Features (1)
Penetration



Infrared irradiation penetrates the liquid to make inside visible.

Features (2)
Cancellation

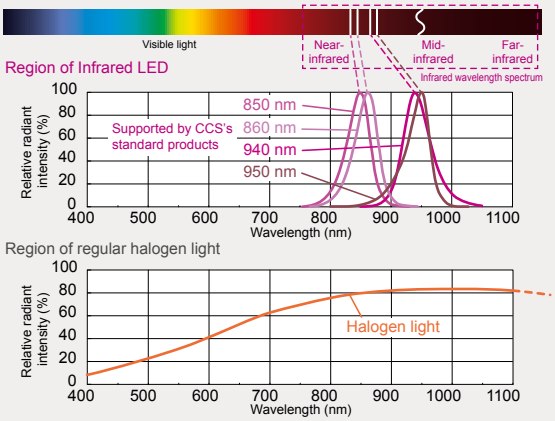


Infrared irradiation cancels out the printing to image the surface evenly.

Merits

Irradiation of the Infrared LED includes only the energy of specific region of wavelength, so that the irradiation heat is extremely low compared to the halogen lights and gives less damage on the workpiece.

	Infrared LED	Regular halogen light
Irradiation heat	Extremely low	Heat-generating
Influence on the workpiece	Small heat damage	Huge heat damage



Custom orders

Please contact your CCS sales representative.

E.g.: Different wavelength

Wavelength — Equipped with LEDs that are 1,000 nm and higher

Customizable items

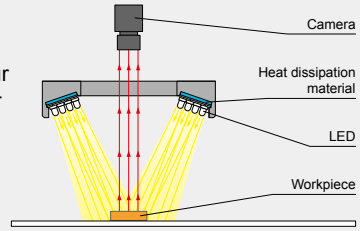
- External/internal diameter
- Wavelength/ color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

Etc.

Example configuration

Ring Lights that use infrared LEDs. Bar types and coaxial types are also available. Select your format to match your needs.

LDR2-90IR2-850/940



We have various materials.
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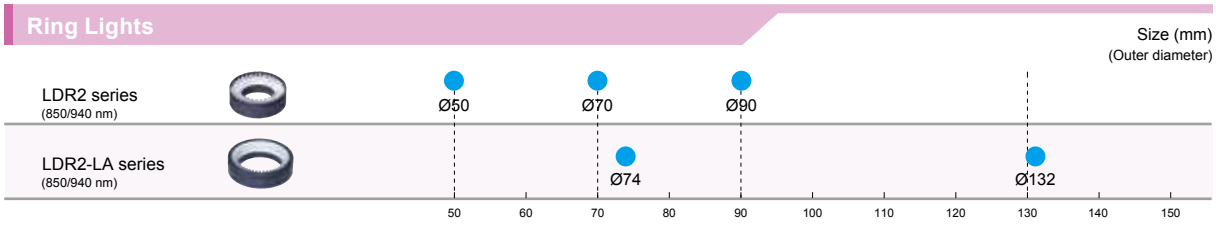
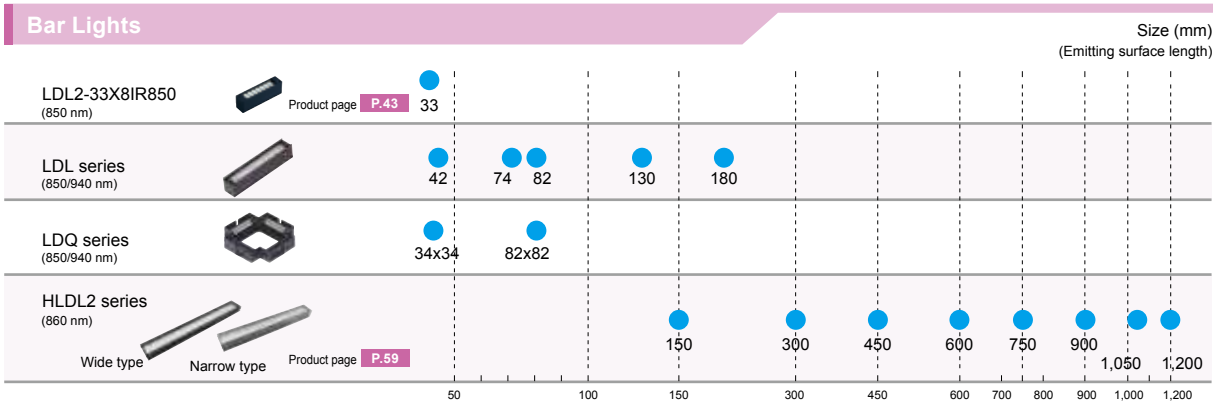
Extensive lineup of Infrared Lights

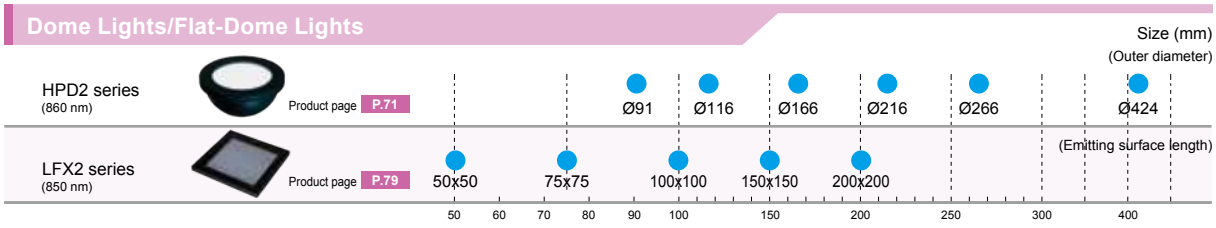
Ring Lights



Bar Lights

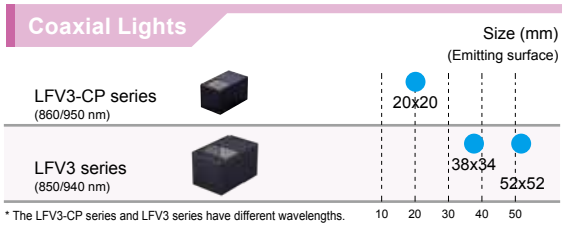


Dome Lights/Flat-Dome Lights



Flat Lights

Coaxial Lights



* The LFV3-CP series and LFV3 series have different wavelengths.

Custom products with a wavelength of 1,000 nm or more are available, please contact your CCS sales representative for details.

Near-infrared cameras in the testing rooms

Ready for the test with infrared light over 1,000 nm wavelength

CCS is deploying infrared-sensitive CCD cameras in the testing rooms where you can perform workpiece tests directly for yourself using our LED Lights. Please feel free to make an appointment. We are looking forward to helping you.

Near-infrared CCD camera

Optimal for infrared imaging

Specifications
BOBCAT-320 (manufactured by Xenics)
- InGaAs sensor
- Wavelength: 0.9 to 1.7 µm
- 320 × 256 pixels
- Uncooled
- C mount

Our personalized staff will be happy to suggest the lighting solution for getting optimal images.

IR2 series

Refer to our website for product details.

CCS IR2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Imaging example : Imaging the foreign materials in disinfectant product

Description	Foreign materials inspection
Workpiece	Disinfectant product
Before the proposal	LED visible light lighting
After the proposal	LFL-100IR2-940
Result	Infrared lighting penetrates the liquid

■ Workpiece image

Disinfectant product

■ LED visible light lighting

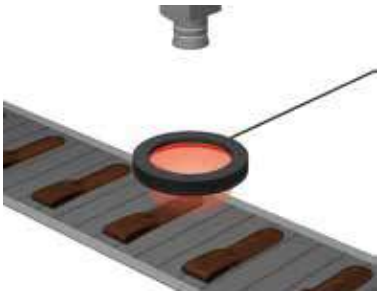
It is difficult to check the inside with visible light imaging.

■ LFL-100IR2-940

Imaging with infrared light penetrates the liquid and captures the foreign materials.

* This workpiece was processed by CCS for sample imaging.

Imaging example : Imaging the appearance of leatherware

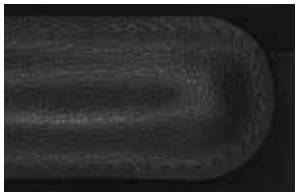


Description	Visual inspection
Workpiece	Leatherware
Before the proposal	LED visible light lighting
After the proposal	LDR2-132IR2-850-LA
Result	Infrared lighting penetrates the dye on the threads

■ Workpiece image

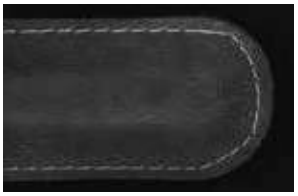
Leatherware

■ LED visible light lighting



The leather and the threads are of the same color, so that it is difficult to capture the stitching.

■ LDR2-132IR2-850-LA



Infrared light penetrates the dye to highlight the threads and captures the stitching.

Cautionary information regarding infrared products

- This product uses infrared LEDs. You cannot visually sense the brightness, but infrared radiation comes out of the LEDs when they are on.
- The peak wavelength range corresponds to IR-A (780 to 1,400 nm).
- Infrared radiation in the IR-A range can damage your eyes. Never look at the infrared radiation directly.
- Inform all persons in the area around this product of the dangers of infrared LED.

We have various materials.

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

Lineup

Series	Model name	LED color	Power consumption	Peak wavelength	Options	Recommended Control Units	Weight
LDR2	LDR2-50IR2-850	Infrared	24 V / 3.8 W	850 nm	—	PD3 / PSB / POD*2	50 g
	LDR2-50IR2-940			940 nm			
	LDR2-70IR2-850		24 V / 7.6 W	850 nm			130 g
	LDR2-70IR2-940			940 nm			
	LDR2-90IR2-850		24 V / 14 W	850 nm			170 g
	LDR2-90IR2-940			940 nm			
LDR2-LA	LDR2-74IR2-850-LA	Infrared	24 V / 6.9 W	850 nm			90 g
	LDR2-74IR2-940-LA			940 nm			
	LDR2-132IR2-850-LA		24 V / 16 W	850 nm			270 g
	LDR2-132IR2-940-LA			940 nm			
LDL	LDL-42X15IR2-850	Infrared	24 V / 2.3 W	850 nm			40 g
	LDL-42X15IR2-940			940 nm			
	LDL-74X27IR2-850		24 V / 6.9 W	850 nm			80 g
	LDL-74X27IR2-940			940 nm			
	LDL-82X15IR2-850		24 V / 3.8 W	850 nm			60 g
	LDL-82X15IR2-940			940 nm			
	LDL-130X15IR2-850		24 V / 6.1 W	850 nm			90 g
	LDL-130X15IR2-940			940 nm			
	LDL-180X15IR2-850		24 V / 8.4 W	850 nm			110 g
	LDL-180X15IR2-940			940 nm			
LDQ	LDQ-78IR2-850	Infrared	24 V / 6.1 W	850 nm		PD3*1 / PSB*1 / POD*2	110 g
	LDQ-78IR2-940			940 nm			
	LDQ-150IR2-850		24 V / 16 W	850 nm			530 g
	LDQ-150IR2-940			940 nm			
LDL	LDL-60X60IR2-850	Infrared	24 V / 7.6 W	850 nm			140 g
	LDL-60X60IR2-940			940 nm			
	LDL-100X100IR2-850		24 V / 21 W	850 nm			650 g
	LDL-100X100IR2-940			940 nm			
LFL	LFL-100IR2-850	Infrared	24 V / 7.6 W	850 nm		PD3 / PSB / POD*2	220 g
	LFL-100IR2-940			940 nm			
LFV3-CP	LFV3-CP18IR2-860	Infrared	24 V / 2.6 W	860 nm			70 g
	LFV3-CP18IR2-950			950 nm			
LFV3	LFV3-35IR2-850	Infrared	24 V / 3.1 W	850 nm			175 g
	LFV3-35IR2-940			940 nm			
	LFV3-50IR2-850		24 V / 9.1 W	850 nm			335 g
	LFV3-50IR2-940			940 nm			

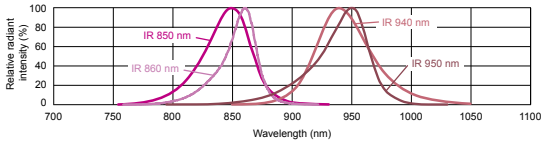
*1: The LDQ series is equipped with four Light Units. If you would like to control the light intensity individually, use a 4-channel Control Unit.

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*2: 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

Light spectrum



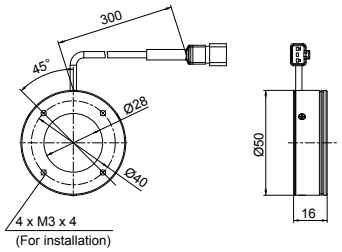
Be sure to read the “Instruction Guide” included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

IR2 series

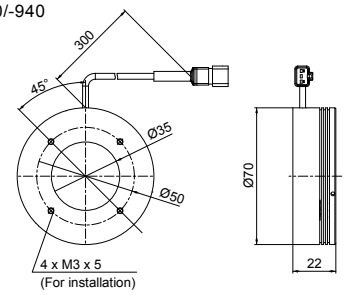
Refer to our website for product details.
CCS IR2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Dimensions (mm)

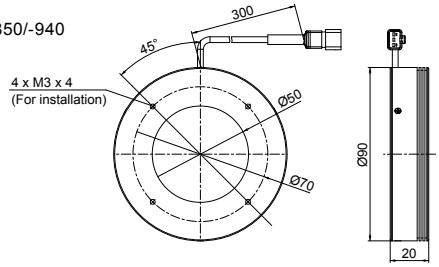
LDR2-50IR2-850/-940



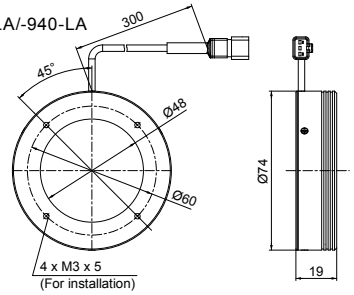
LDR2-70IR2-850/-940



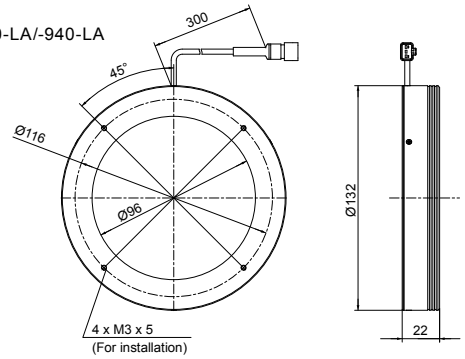
LDR2-90IR2-850/-940



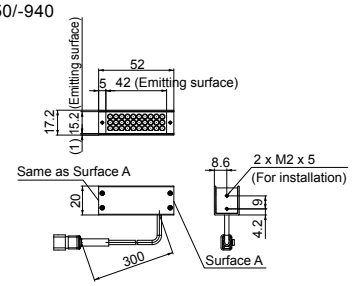
LDR2-74IR2-850-LA/-940-LA



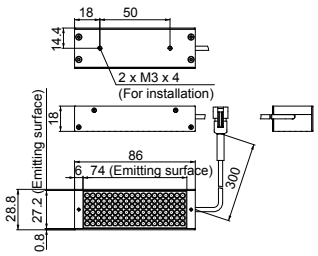
LDR2-132IR2-850-LA/-940-LA



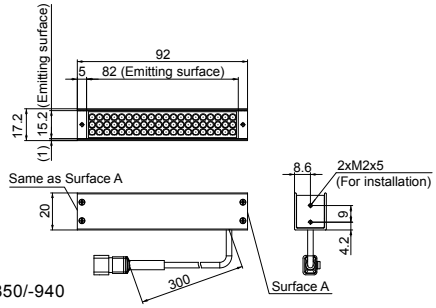
LDL-42X15IR2-850/-940



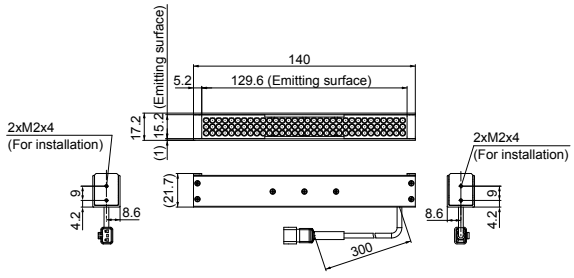
LDL-74X27IR2-850/-940



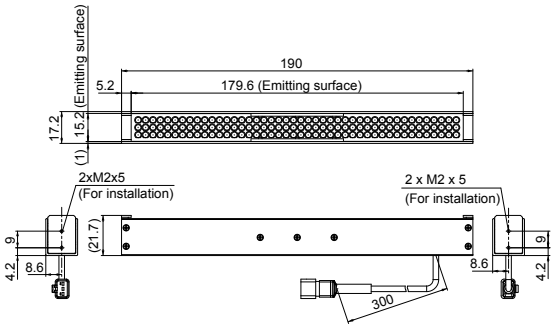
LDL-82X15IR2-850/-940



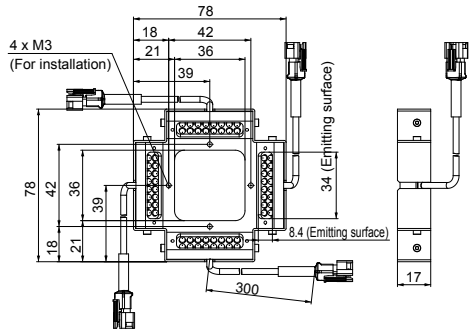
LDL-130X15IR2-850/-940



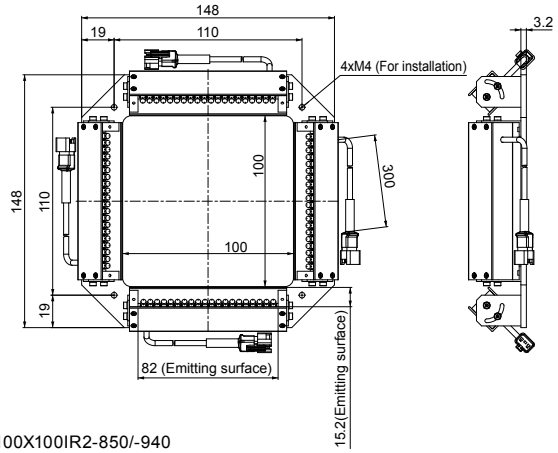
LDL-180X15IR2-850/-940



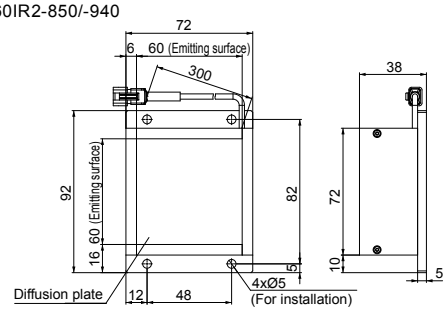
LDQ-78IR2-850/-940



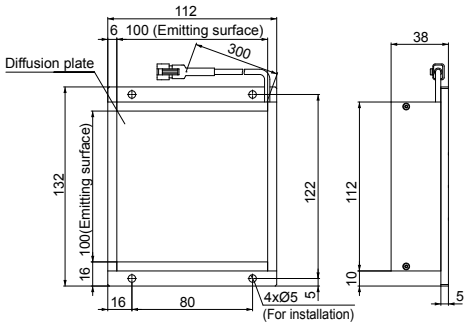
LDQ-150IR2-850/-940



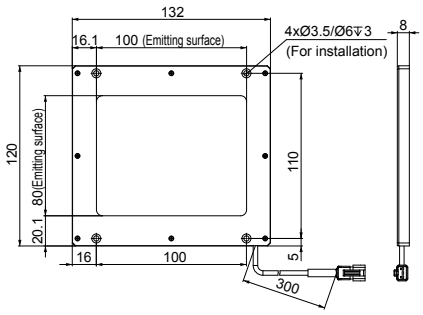
LDL-60X60IR2-850/-940



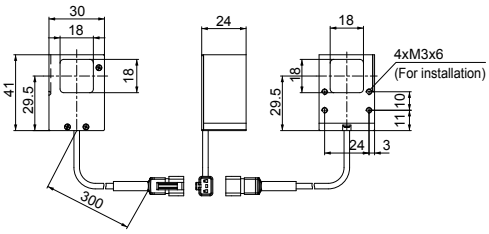
LDL-100X100IR2-850/-940



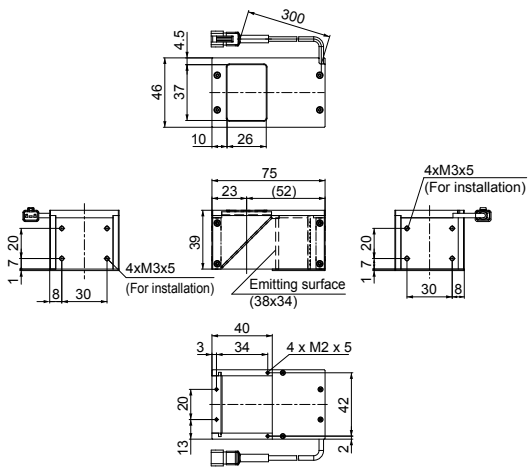
LFL-100IR2-850/-940



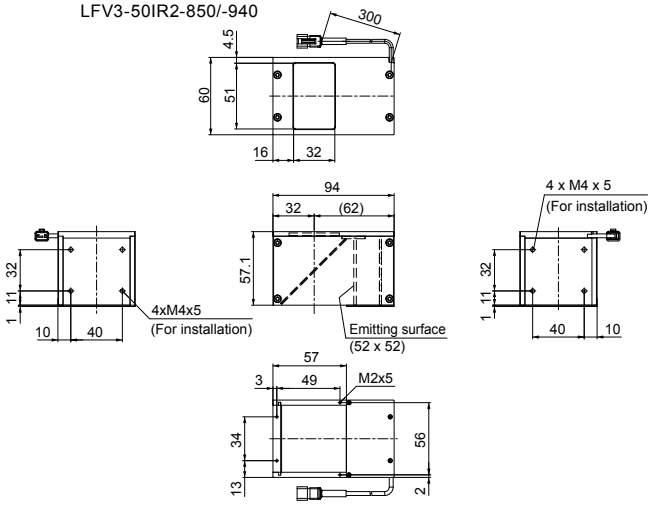
LFV3-CP18IR2-860/-950



LFV3-35IR2-850/-940



LFV3-50IR2-850/-940



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Spot Lights
HLV2 series

Refer to our website for product details.
CCS HLV2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides high output spot lighting using an original optical design


HLV2-22


HLV2-22-1220-3W


HLV2-14/HLV2-14-HU


HLV2-22-3W

Applications As a light source for a telecentric lens, light source for alignment of LCDs or circuit boards, light source for dimension measuring, and light source for spot illumination, etc.

Lineup with selection to match your needs

The HLV2 series provides a selection to match your usage environment and application. The LED color has a lineup of red, white, blue, and green.

HLV-14 series, with a lightweight and compact design

Compact model

The HLV2-14 series is perfect for saving space, with its lightweight and compact design.

Weighs just 18g

Example connection with the lens

Spot Lights that achieve high output

The lightweight and compact Spot Light achieved high output through its unique optical design.

HLV2-22-3W series, a high output model

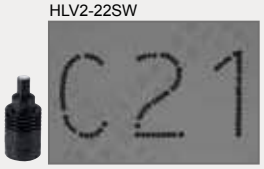
Standard model

HLV2-22 series

High output model

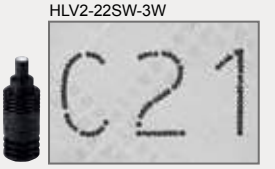
The HLV2-22-3W series is a Spot Light with the highest output of all series.

HLV2-22SW



Shutter speed: 1/20,000 sec

HLV2-22SW-3W



Shutter speed: 1/20,000 sec

* Brightness varies based on the camera's spectral sensitivity.
* The data included is for reference only and does not guarantee the quality of this product.

Custom orders

Please contact your CCS sales representative.

E.g.: Changed the LED emitted wavelength to infrared

Wavelength

Created an Infrared Light

Customizable items

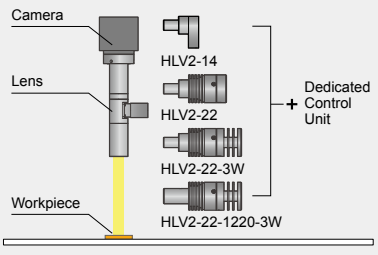
- External/internal diameter
- Wavelength/ color
- Increase output
- Cable length
- Illuminating angle
- Format/ material
- Connector format
- Installation/ mounting

Etc.

Example configuration

Revised the optical system to increase the emitting efficiency for this high output Spot Light.

HLV2 series



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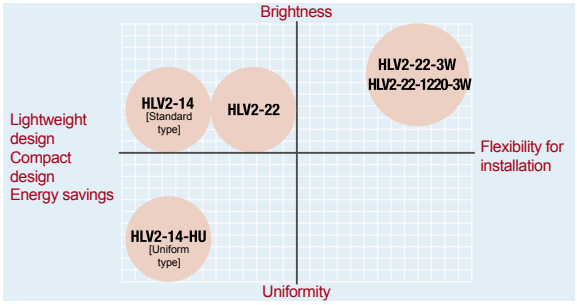
http://www.ccs-grp.com/dl/

Lineup offering a selection to match your needs

■ HLV2 series evaluation chart

	Brightness	Uniformity	Lightweight design	Compact design	Flexibility for installation	Energy savings
HLV2-14 [Standard type]	Good	Good	Very Good	Very Good	Good	Very Good
HLV2-14-HU [Uniform type]	OK	Very Good	Very Good	Very Good	Good	Very Good
HLV2-22 (Comparison criterion)	Good	Good	Good	Good	Good	Good
HLV2-22-3W	Very Good	Good	OK	OK	Very Good	Good
HLV2-22-1220-3W	Very Good	Good	OK	OK	Very Good	Good

■ HLV2 series evaluation graph

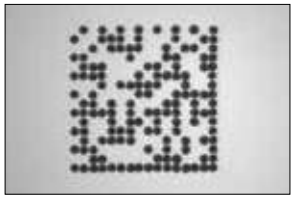


* Comparison using CCS products

Imaging example: Imaging of 2-dimensional code

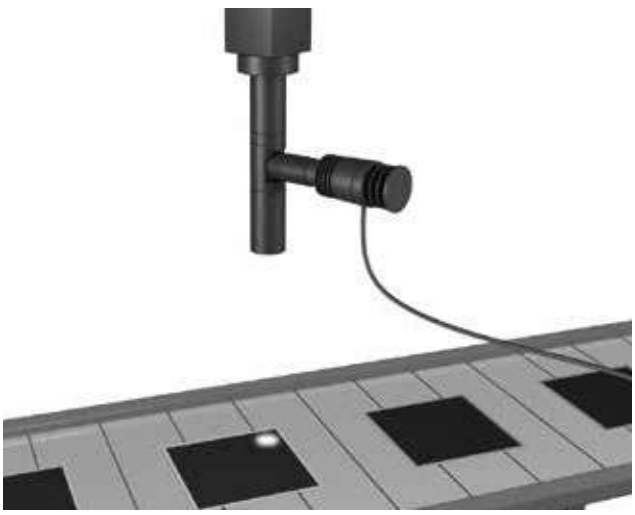
Description	Code reading
Workpiece	2-dimensional code
After the proposal	HLV2-22RD-3W

■ HLV2-22RD-3W



2-dimensional code

Imaging example : Imaging of an alignment mark



Description	Positioning
Workpiece	Alignment mark
Light Unit in use	HLV2-22SW-3W

■ HLV2-22SW-3W

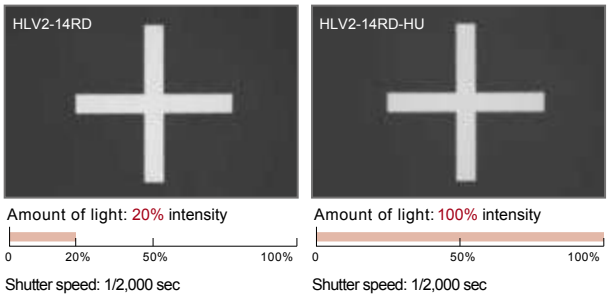
Alignment mark

HLV2 series

Refer to our website for product details.
CCS HLV2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

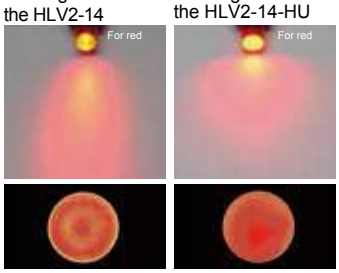
Comparison of data for the HLV2-14 series

Brightness comparison between the HLV2-14 and HLV2-14-HU



Shutter speed: 1/2,000 sec
Shutter speed: 1/2,000 sec

Emitting surface of the HLV2-14 / Emitting surface of the HLV2-14-HU



The HLV2-14-HU is a Spot Light with a highly uniform emitting surface.

* Comparison using CCS products
* This data is for reference only. Actual values may vary.

Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
HLV2-14RD	Red	0.9 W	645 nm	–	PD3* CC-PJ-0707 PJ	18 g
HLV2-14SW	White		5,300 K			
HLV2-14BL	Blue		465 nm			
HLV2-14GR	Green		520 nm			
HLV2-14RD-HU	Red	0.9 W	645 nm			18 g
HLV2-14SW-HU	White		4,700 K			
HLV2-14BL-HU	Blue		465 nm			
HLV2-14GR-HU	Green		520 nm			
HLV2-22RD	Red	1.4 W	645 nm	Convergent lens		37 g
HLV2-22SW	White		5,300 K			
HLV2-22BL	Blue		465 nm			
HLV2-22GR	Green		520 nm			
HLV2-22RD-3W	Red	2.8 W	645 nm			41g
HLV2-22SW-3W	White		5,300 K			
HLV2-22BL-3W	Blue		465 nm			
HLV2-22GR-3W	Green		520 nm			
HLV2-22RD-1220-3W	Red	2.8 W	645 nm	–		42 g
HLV2-22SW-1220-3W	White		5,300 K			
HLV2-22BL-1220-3W	Blue		465 nm			
HLV2-22GR-1220-3W	Green		520 nm			

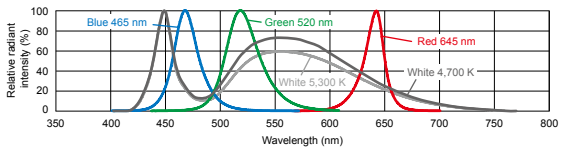
Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* The PD3-3024-3 and PD3-5024-3 series are not applicable to these products.

Caution	• The length of the extension cable must be 5 m or less. If you would like to use longer than 5 m, please contact your CCS sales representative. • Branch cables cannot be used. Use the FCB series (straight cable) or the FRCB series (robot cable).

LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
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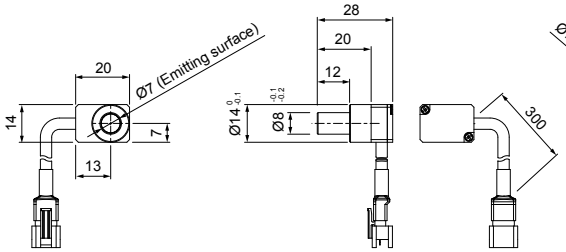
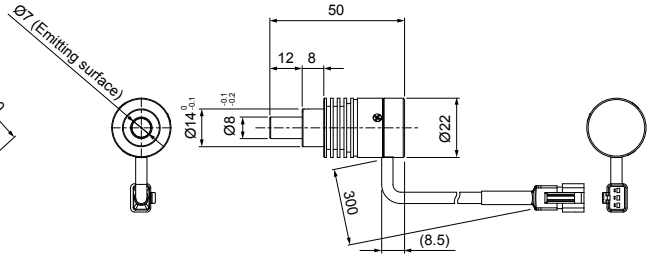
Dimensions (mm)

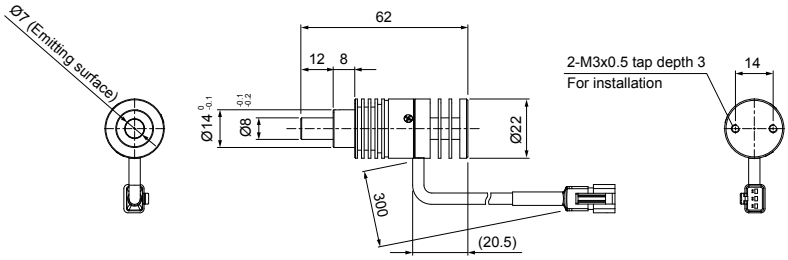
HLV2-14RD/SW/BL/GR/RD-HU/SW-HU/BL-HU/GR-HU



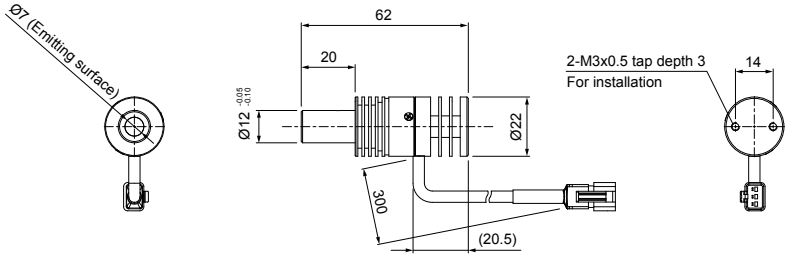
HLV2-22RD/SW/BL/GR



HLV2-22RD-3W/SW-3W/BL-3W/GR-3W



HLV2-22RD-1220-3W/SW-1220-3W/BL-1220-3W/GR-1220-3W

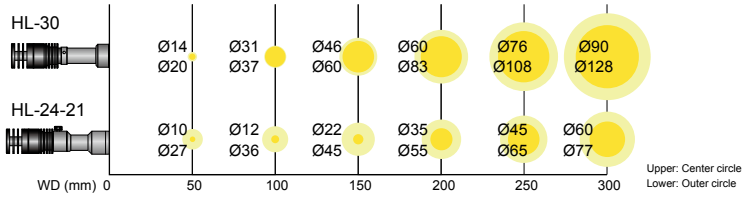


Options

HLV2-22 series dedicated convergent lens HL-30/HL-24-21

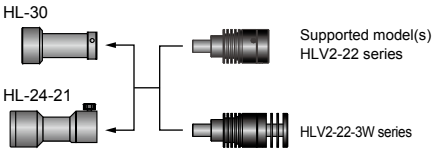
* Cannot be used with the HLV2-14/HLV2-22-1220-3W/HLV2-22-NR-3W series.

■Illuminated range of the HL-30/HL-24-21



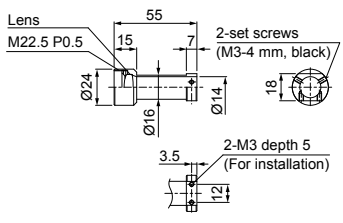
* This data is actual measurement values. Results for individual products may vary.

■Installation with the HLV2-22 series

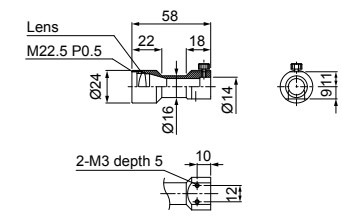


Dimensions (mm)

HL-30



HL-24-21



You can inquire using our website.

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Spot Lights
LV series

Refer to our website for product details.
CCS LV ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides spot lighting using original converging technology

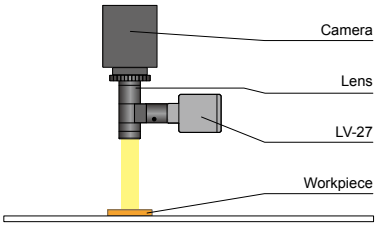
Applications As a light source for a telecentric lens, light source for inspecting alignment of LCDs or circuit boards, light source for dimension measuring, and light source for spot illumination, etc.

Characteristics

Spot Light with tip radius of Ø8 mm and emitting surface of Ø6 mm. Can be used embedded into the coaxial illuminating section of a telecentric lens or macro lens.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

Example configuration (LV-27)



Lightweight, compact design

With its lightweight and compact design, it doesn't take up much room and is perfect for saving space.

Spot Light with low power consumption

The LV series consumes 0.8 W (for red) of power, and can be used for saving energy.

Lineup

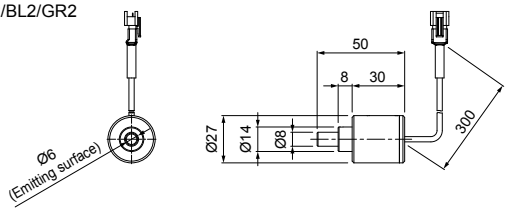
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LV-27RD2	Red	24 V / 0.8 W	630 nm	–	PD3, CC-ST-1024, PSB, POD*	40 g
LV-27SW2	White	24 V / 0.4 W	5,500 K			
LV-27BL2	Blue	24 V / 0.4 W	470 nm			
LV-27GR2	Green	24 V / 0.6 W	525 nm			

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* 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

Dimensions (mm)

LV-27RD2/SW2/BL2/GR2



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Note	• Use as a Spot Light for directly illuminating the workpiece. • In addition to Light Units with a tip radius of Ø8 mm, we also offer Ø10 mm and Ø12 mm as custom orders.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Spot Lights
LSP series

Refer to our website for product details.
CCS LSP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Super-Uniform Spotlight for wide variety of applications

LSP-41RD

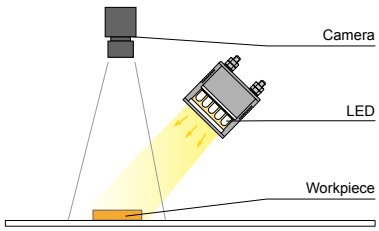
Applications	Character recognition, visual inspection for electronic parts, visual and position inspections for circuit boards, and light source for spot lights, etc.

Characteristics

High luminance Spot Lights LSP Series is suited for limited and long working distance from 300 mm to 500 mm, with a compact design—Ø41 mm diameter housing.

We accept custom orders. Please feel free to inquire.
• Change to length, etc.

Example configuration (LSP-41RD)



Examples of Light Images

Reading bar code
Light used: LSP-41RD

Reading QR code
Light used: LSP-41RD

Inspecting dot-marked characters on pipe
Light used: LSP-41RD

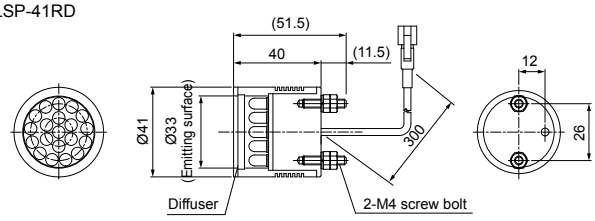
Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LSP-41RD	Red	12V / 20 W	660 nm	Polarizing plate	PD2, PSB, PTU2	115 g

LED Properties: Light Spectrum ▶ P.242 | Options ▶ P.223 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

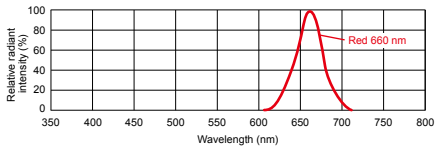
Dimensions (mm)

LSP-41RD



LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information. The data included is for reference only. Actual values may vary.

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

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Micro Fiber Heads
HFS series

Refer to our website for product details.
CCS HFS ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

LED Fiber Light (straight) that uses original converging technology


HFS-14-500

Model name	HFS-14-500
Fiber material	Multicomponent glass
Case material	Aluminum alloy
Flexible tube material	SUS
Strand diameter (μm)	50
Fiber arrangement	Random
Numerical aperture (NA)	0.56
Receiving angle (°)	68
Transmitted wavelength (nm)	300 to 1,300
Minimum bending radius (mm)	50

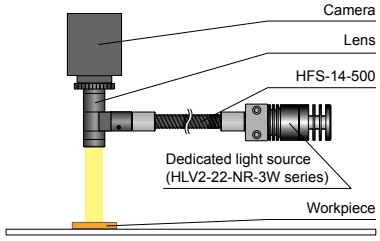
Applications As a light source for a telecentric lens, visual inspection for chips, and alignment mark imaging, etc.
Common for the HFS and HFR series

Characteristics

This is a unique Light Unit system that melds the strengths of both LEDs and fibers. The HFS series, a straight type, is lightweight, compact, and easy to manage, and therefore can be used in a variety of applications.

We accept custom orders. Please feel free to inquire.
• Change to length, etc.

Example configuration (HFS-14-500)

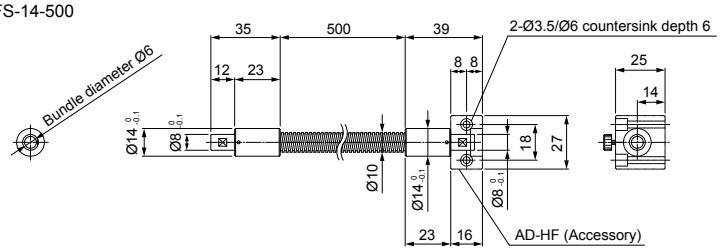


It can be used in a variety of situations

Dedicated Light Source (HLV2-22-NR-3W series) Product Page ► P.117

Dimensions (mm)

HFS-14-500



Common specifications for the HFS/HFR series

Model name	Operating temperature and humidity	Storage temperature and humidity	Weight
HFR-25-10	Temperature: 0 to 40°C, Humidity: 20% to 70%RH (with no condensation)	Temperature: -10 to 60°C, Humidity: 20% to 70%RH (with no condensation)	60 g
HFR-25-30			
HFR-40-20			250 g
HFS-14-500			115 g

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Micro Fiber Heads
HFR series

Refer to our website for product details.
CCS HFR ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

LED Fiber Light (ring type) that uses original converging technology

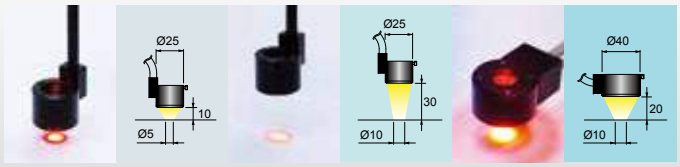

HFR-25-10 HFR-25-30


HFR-40-20*

* Three dedicated light sources are required for use.
Dedicated Light Source (HLV2-22-NR-3W series)
Product Page ► P.117

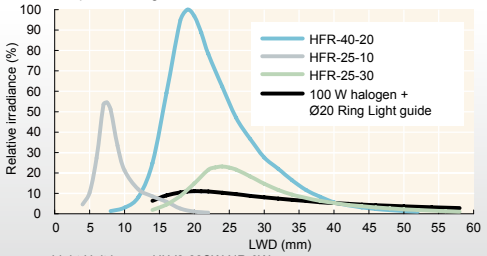
Model name	HFR-25-10/30 HFR-40-20
Fiber material	Plastic
Case material	Aluminum alloy
Flexible tube material	SUS
Strand diameter (μm)	500
Fiber arrangement	–
Numerical aperture (NA)	0.5
Receiving angle (°)	60
Transmitted wavelength (nm)	400 to 700
Minimum bending radius (mm)	30

■HFR-25-10 ■HFR-25-30 ■HFR-40-20



Ø5 mm near LWD 10 mm convergent illumination
Ø10 mm near LWD 30 mm convergent illumination
Ø10 mm near LWD 20 mm convergent illumination

Graph of change in irradiance in each LWD for the HFR series



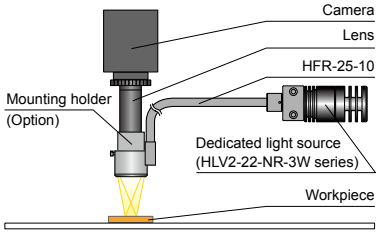
Light Unit in use: HLV2-22SW-NR-3W
* This data is for reference only. Actual values may vary.

Characteristics

The HFR series, a ring type, does not illuminate a broad range like a halogen fiber light, but can perform convergent illumination for the required field of vision.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

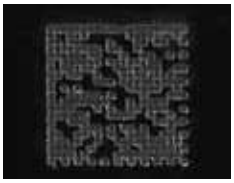
Example configuration (HFR-25-10)



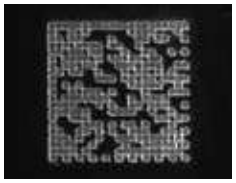
Imaging using the HFR-25-10 (White)


HFR-25-10

100 W halogen + Ring Light guide:
LWD 20 mm

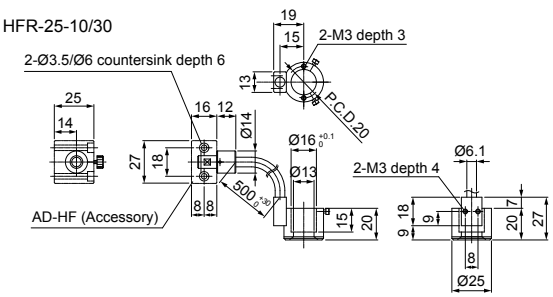

Intensity: 100%
Shutter speed: 1/4,000 sec

HFR-25-10 (White): LWD 10 mm

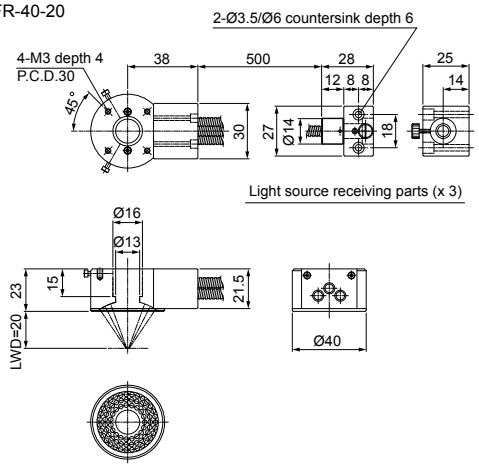

Intensity: 100%
Shutter speed: 1/4,000 sec

Dimensions (mm)

HFR-25-10/30



HFR-40-20



Options

Mounting holder for the HFR-25-10/-30

Light Units can be easily installed and mounted in the position for the most efficient convergence.


HD-HFR-25-1640 HD-HFR-25-1618
Example of usage
Example of usage

Dedicated Light Source (HLV2-22-NR-3W series) Product Page ► P.117

You can inquire using our website.
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Micro Fiber Head Dedicated Light Sources
HLV2-22-NR-3W series

Refer to our website for product details.
CCS HLV2-22-NR-3W ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides high output spot lighting using an original optical design

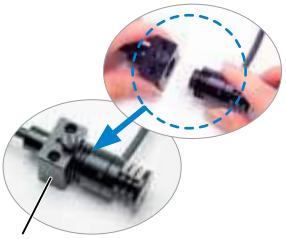
■Example connection with the HFS-14-500

■Example connection with the HFR-25-30

Characteristics

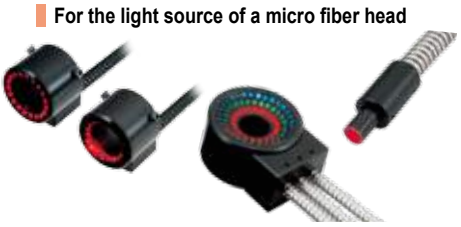
The micro fiber head dedicated light source allows for easy installation and removal. Select the perfect emitted color for workpiece imaging to achieve accurate characteristic extraction.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.



HFS/HFR accessory: Connection adapter (AD-HF)

For the light source of a micro fiber head



Micro Fiber Head Product Page ▶ P.115

For the light source of a full color blending unit

Full Color Blending Unit Product Page ▶ P.118

Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
HLV2-22RD-NR-3W	Red	2.8 W	645 nm	–	PD3* CC-PJ-0707 PJ	37 g
HLV2-22SW-NR-3W	White		5,300 K			
HLV2-22BL-NR-3W	Blue		465 nm			
HLV2-22GR-NR-3W	Green		520 nm			

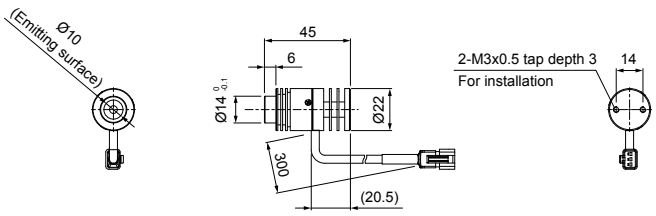
LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

* The PD3-3024-3 and PD3-5024-3 series are not applicable to these products.

Caution	• The length of the extension cable must be 5 m or less. If you would like to use longer than 5 m, please contact your CCS sales representative. • Branch cables cannot be used. Use the FCB series (straight cable) or the FRCB series (robot cable).

Dimensions (mm)

HLV2-22RD-NR-3W/SW-NR-3W/BL-NR-3W/GR-NR-3W



We have various materials.
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HLV2-3M-RGB-3W

Refer to our website for product details.
CCS HLV2-3M-RGB-3W ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

A full color light source that achieves the illumination color perfect for your workpiece


HLV2-3M-RGB-3W

■Example connection with the HFS-14-500

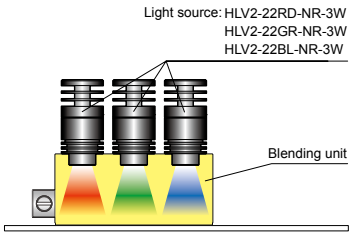
■Example connection with the HFR-25-30

Characteristics

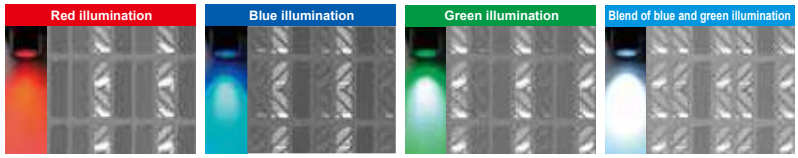
The red, blue, and green light illuminated from the dedicated light sources is blended inside this unit, achieving the illumination color perfect for the workpiece. Combine with a micro fiber head to support a wide variety of applications.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

Example configuration (HLV2-3M-RGB-3W)



Imaging example: Imaging of liquid-crystal color filter



Use the HLV2-22-NR-3W series to create illumination with a highly accurate blended color.
Independently adjust the intensity for each color to create exactly the color you want and help improve inspection accuracy.

Micro Fiber Head Product Page ▶ P.115 HLV2-22-NR-3W series Product Page ▶ P.117

Lineup

Model name	LED color	Power consumption	Peak wavelength	Options	Recommended Control Units	Weight
HLV2-3M-RGB-3W	Red	8.4 W	645 nm	–	PD3* / PJ	232 g
	Green		520 nm			
	Blue		465 nm			

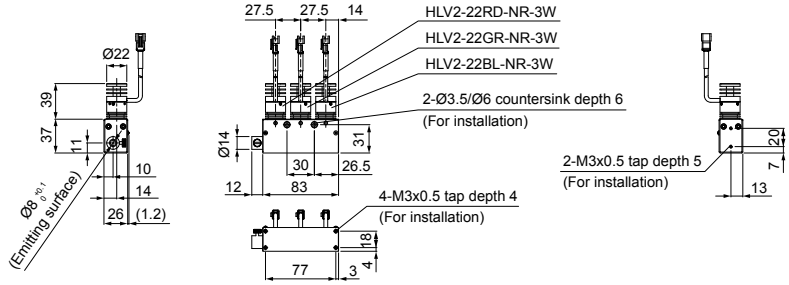
LED Properties: Light Spectrum ▶ P.242 Extension Cables ▶ P.230 Control Unit Selection Guide ▶ P.185 List of Control Unit Specifications ▶ P.187

* The PD3-3024-3 and PD3-5024-3 series are not applicable to these products.

Caution	• The length of the extension cable must be 5 m or less. If you would like to use longer than 5 m, please contact your CCS sales representative. • Branch cables cannot be used. Use the FCB series (straight cable) or the FRCB series (robot cable).

Dimensions (mm)

HLV2-3M-RGB-3W



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http://www.ccs-grp.com/contact/

LED Light Sources
PFBR series

Refer to our website for product details.
CCS PFBR ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides light output that exceeds that of a 250 W metal halide light source

We accept custom orders for red, blue, and green light.
Contact your CCS sales representative for details.

CE

The supplied AC cord is for use with 100 to 120 VAC.
If you would like to use the Light Source Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

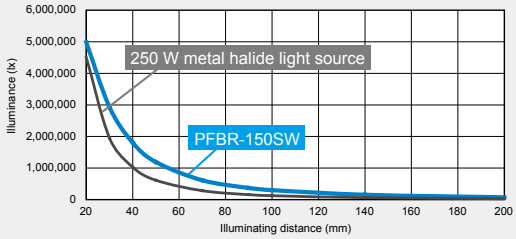
Applications Connect to light guides and use as a light source

Caution This product emits high-intensity visible light. Materials that absorb light may convert that light into heat and be damaged. Check the instructions in the "Instruction Guide" and use this product in a safe manner.

Achieves the highest level in the industry with 2 million lx

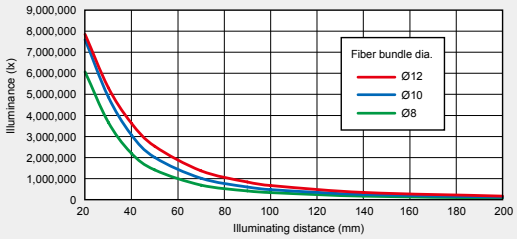
* Actual measurement values with a bundle of Ø10 mm, a straight light guide with a total length of 1,080 mm installed, and at a position 50 mm away from the fiber output edge. Results for individual products may vary.
* Current as of our in-house inspection in January 2015.

LED light source unit that exceeds a 250 W metal halide light source



* Actual measurement values with intensity of 100%, bundle of Ø8 mm, a straight light guide with a total length of 1,100 mm installed, and at positions at each illuminating distance away from the fiber output edge. Results for individual products may vary.

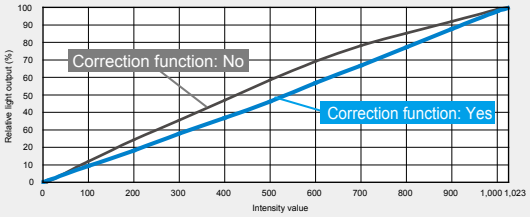
Optical design is optimized for all types of fiber to provide high output



* Actual measurement values with intensity of 100%, bundles of Ø8, 10, and 12 mm, a straight light guide with a total length of 1,080 mm installed, and at positions at each illuminating distance away from the fiber output edge. Results for individual products may vary.

1,024-step intensity. Linear characteristics with reproducibility

Our unique correction function is a standard function.
Provides linearity with reproducibility

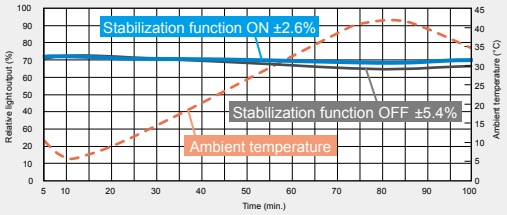


* Actual measurement values using our measurement conditions.
Results for individual products may vary.
The correction function of this product is always set to "Yes".

■Intensity value can be adjusted in steps
• 1,024-step intensity (10-bit) • 256-step intensity (8-bit)

Equipped with a light output stabilization (feedback) function

Stable light output even in severe operating environments



* Actual measurement values using our measurement conditions. Results for individual products may vary. Stabilization function is set to OFF when shipped from the factory.

Standard compatibility with three types of light guides

Check the dimensions of the light guide to be used before selecting an adapter.

* For details, refer to the Light Guide Adapter Dimensions Chart on P. 120.
* Be careful as plastic fiber cannot be used.
* A light guide adapter is not provided with the LED Light Source. Order one separately.

External control by use of a large variety of communication methods

Digital communication control:	Compatible with sink and source types
Analog communication control:	Intensity control from 0 to 5 V
Serial communication control:	RS-232C
Ethernet communication control:	TCP/IP and UDP/IP protocols

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Lineup

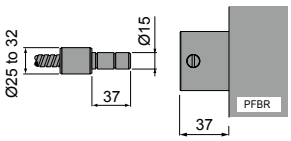
Model name	LED color	Correlated color temperature	Power consumption	Options	External control cables	Weight
PFBR-150SW-MN	White	6,500 K	200 VA	AD-PFBR-150-MO AD-PFBR-150-HY AD-PFBR-150-SU	Parallel communication cable Serial communication cable	3,900 g

Dimensions of the light guide adapters (mm)

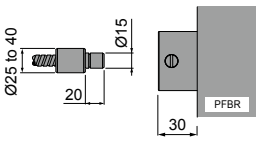
Select a light guide adapter when you evaluate the LED Light Source.

Options

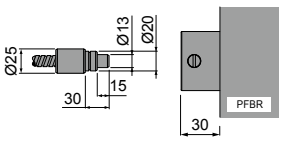
Model name: AD-PFBR-150-MO



Model name: AD-PFBR-150-HY



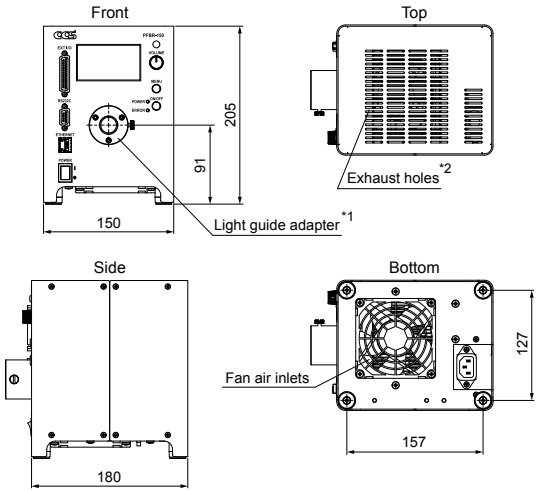
Model name: AD-PFBR-150-SU



Caution

- Be careful as plastic fiber cannot be used.
- Please be aware that the light guide adapter must be installed after purchase by the customer. Inquire with the CCS sales representative regarding sizes not listed here.

Dimensions (mm)



*1 A light guide adapter is not provided with the LED Light Source. Order one separately.
The shape of the light guide adapter depends on the details of the order.
*2 Installation method: Do not place any objects within 100 mm of the exhaust holes on the top panel.

CCS will provide custom order products. Please feel free to consult with us.

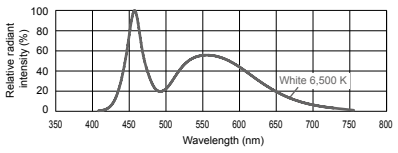
- Change to wavelength (Red, blue, and green)
- Change to light distribution angle, etc.

Specifications

Applicable fiber bundle diameter	Ø8 to Ø14 mm
Light distribution angle	Total angle of 30°
Drive method	Constant-current system
Intensity control method	Variable-current control
No. of channels	1 channel
Input power supply	100 to 240 VAC (±10%), 50/60 Hz
Power consumption (typ.)	200 VA
Inrush current (typ.)	15 A at 100 VAC, 30 A at 200 VAC * From a cold start
Ground leakage current	3.5 mA max. (264 VAC, 60 Hz, with no load)
Insulation withstand voltage (Input-FG)	1,500 VAC 1-min. cutoff current 10 mA 500 VDC 20 MΩ
Operating environment	Temperature: 5 to 40°C, Humidity: 20% to 80%RH (with no condensation) Altitude: 2,000 m max., Transient overcurrent: Category II, Pollution level: 2
Storage environment	Temperature: −15 to 60°C Humidity: 20% to 85%RH (with no condensation)
Cooling method	Forced air cooling
CE marking	Safety standard: EN61010-1 compliant, EMC standard: Complies with EN61000-6-2 and EN61000-6-4
Environmental regulations	RoHS compliant
Material, coating, surface processing	Aluminum alloy (black alumite)
Accessories	Instruction Guide x 1, 3-prong AC cord with ground terminal (2 m) x 1

LED properties

Light spectrum

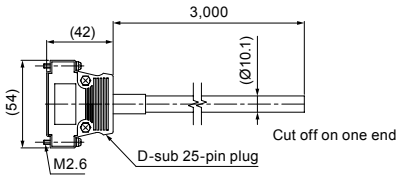


Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information. The data included is for reference only. Actual values may vary.

Options

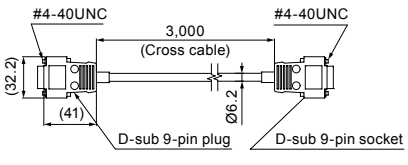
External control cable: EXCB2-25M-3

Parallel communication cable (Compatible with digital and analog intensity)



External control cable: EXCB2-9M-9F-3-CR

Serial communication cable (RS-232C)



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LED Light Sources
PFB2 series

Refer to our website for product details.
CCS PFB2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides light output that exceeds that of a 100 W halogen light source

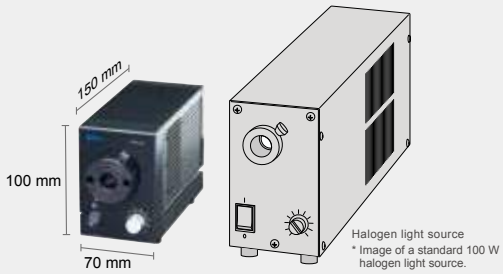
(Without external control) (With external control)

CE

Applications Connect to light guides and use as a light source

Compact size that can be installed anywhere

70 mm wide, 150 mm deep, and 100 mm tall, this compact design helps save space.



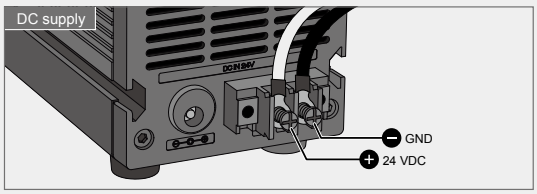
Supports major light guide manufacturers

Supports major light guide manufacturers
(5 Japanese companies, 6 international companies).

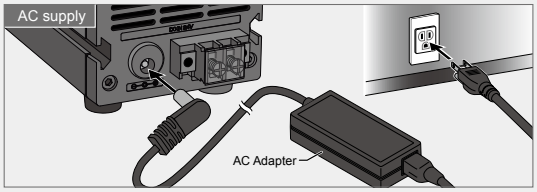
* For details, refer to the Light Guide Adapter Dimensions Chart on P. 122.

Select a power supply to match your actual environment

The terminal block on the unit rear supports 24 VDC input. With an optional AC adapter, it can also support 100 to 240 VAC input. You can make a selection to match your actual environment.



Use the terminal block on the rear of this unit for 24 VDC input.



Use the optional AC adapter for 100 to 240 VAC input.
(Model name: ADP2460-PFB-JTLV6)

Selectable external control

The lineup includes a model where intensity can only be manually adjusted, and models that allow for external control. There are three types of external control: serial, parallel, and analog. ON/OFF control and intensity control are possible by each control type.

Standard type
PFB2-20SW-F-JT series
Manual intensity control | Without external control

Serial type
PFB2-20SW-F-SJT series
Manual intensity control | With external control

Parallel type
PFB2-20SW-F-PJT series
Manual intensity control | With external control

Analog type
PFB2-20SW-F-AJT series
Manual intensity control | With external control

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Lineup

Model name	LED color	Power consumption	Options	Weight
PFB2-20SW-F-JT-□□□	White	15 W	AC Adapter	1,200 g
PFB2-20SW-F-SJT-□□□			AC Adapter External control cable (Serial type)	
PFB2-20SW-F-PJT-□□□			AC Adapter	
PFB2-20SW-F-AJT-□□□			External control cable (Parallel, Analog type)	

LED Properties: Light Spectrum ▶ P.242

* Inquire with your light guide manufacturer for details about the light guide.
* Installation method: Do not place anything within 50 mm of the fan exhaust outlet on the rear, the air inlets on the left and right sides, and the top of the PFB2 unit.

How to read the lineup selection chart

PFB2-20SW-F-JT-□□□

Model name: JT/SJT/AJT/PJT

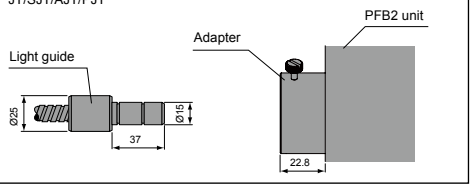
This indicates the light guide adapter type.
-MO/-NP/-MI/-HY/-SU/-VL/-TF/-TE/-SH1/-SH2/
-DJ1/-DJ2/-DJ3/-DJ4/-CS1/-IT

How to read light guide adapter dimensions chart

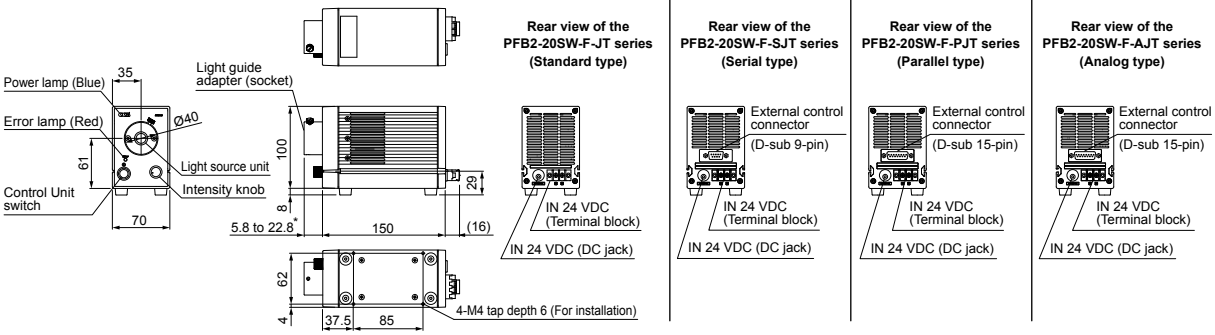
PFB2-20SW-F-□□□-MO

This indicates the model name. JT/SJT/AJT/PJT

Light guide adapter type



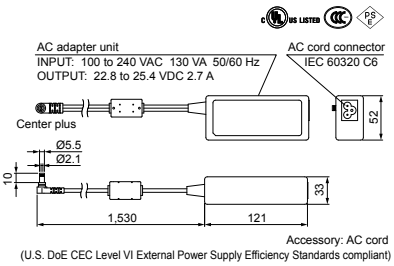
Dimensions (mm)



* The dimensions of the connection adapter (socket) vary based on the light guide in use. For details, refer to our website or inquire with your CCS sales representative.

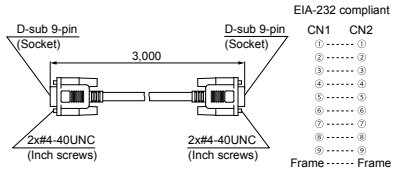
Options

AC adapter: ADP2460-PFB-JTLV6



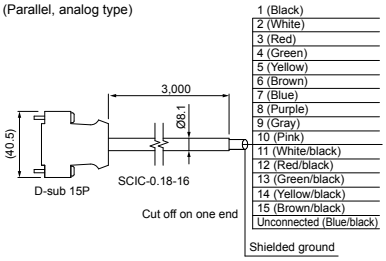
External control cable: EXCB2-9-9-3-ST

(Serial type)



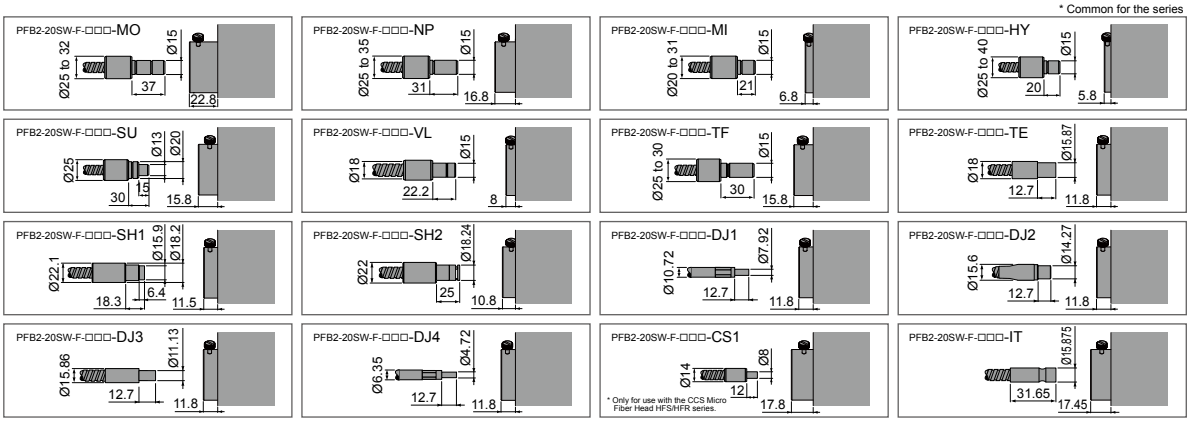
External control cable: EXCB2-B3

(Parallel, analog type)



Light guide adapter dimensions chart (mm)

* Common for the series



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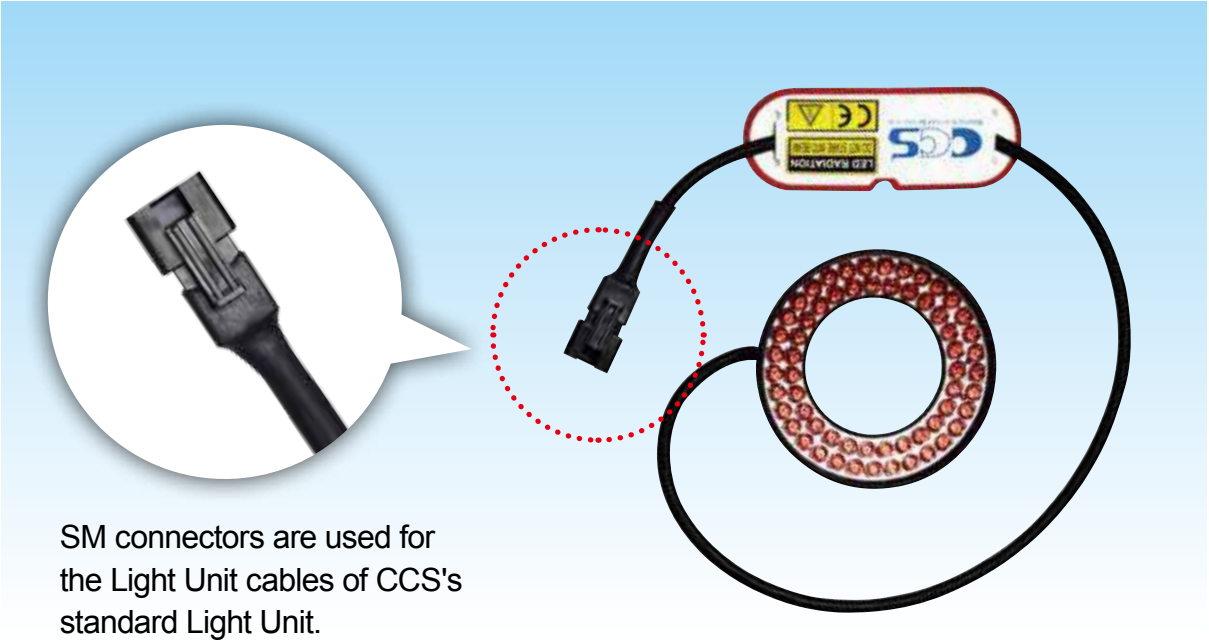
M12 Connector and Flying Leads Light Unit Cables Are Now Available

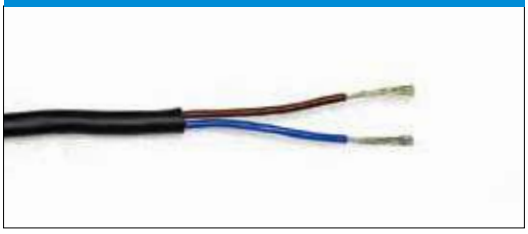


SM connectors are used for the Light Unit cables of CCS's standard Light Unit.

Now You can choose

4-pin M12 Socket Connectors

Flying Leads



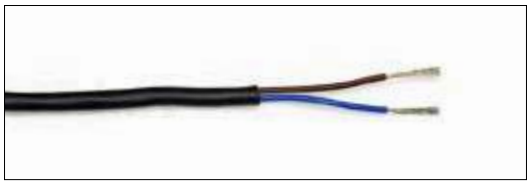
*These specifications are provided for custom production.
Please order with the model name notation given below.

Specification

4-pin M12 Socket Connectors

Model	Standard model name + " **-M12** "
Cable Length	300 mm
Polarity & Signal	1: (+ 24 VDC) 2: No Connection 3: (- GND) 4: No Connection

Flying Leads



Model	Standard model name + " **-FL** "
Cable Length	2,000 mm
Polarity & Signal	Anode(+)Brown / Cathode(-)Blue

For example, to order the LDR2-32RD2 with an **M12** connector attached, specify the model name as "LDR2-32RD2-**M12**".

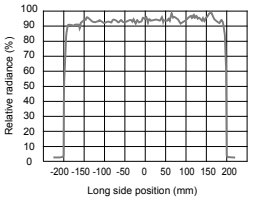
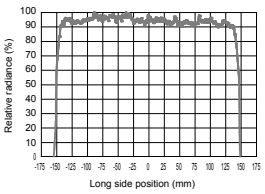
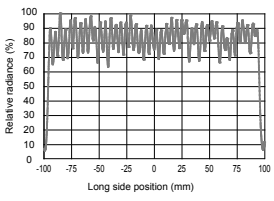
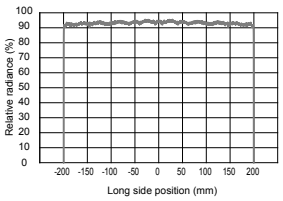
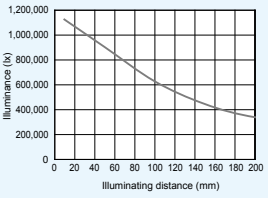
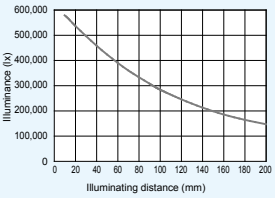
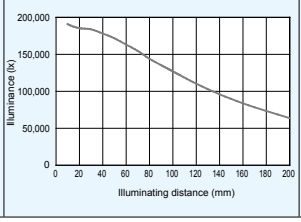
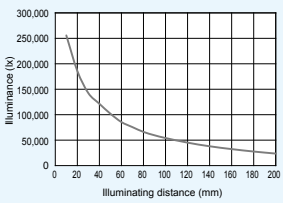
Applicable Products

These specifications are applicable for the standard products shown below.

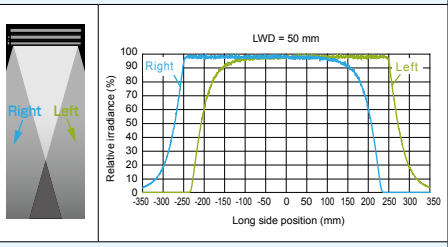
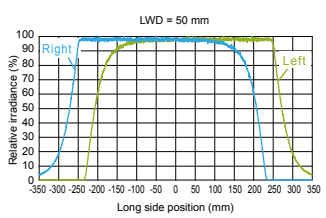
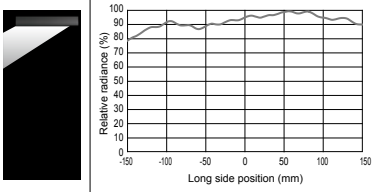
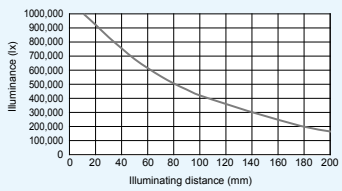
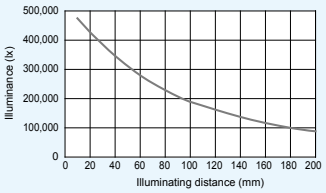
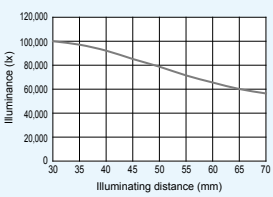
Line Light List

INDEX

(By brightness)

Series name	LNSP-FN series	LNSP series	LN-HK series	LNSD series (High luminance type)
				
	Applicable Control Unit: PSCC(A) series	Applicable Control Unit: PSB3-30024	Recommended Control Units: PD3/PSB series	Recommended Control Units: PD3-10024-8/PSB3-30024
	Refer to: P.133	Refer to: P.127	Refer to: P.138	Refer to: P.139
Brightness	900,000 lx (LWD = 50 mm) Emitting width (Short side): 23 mm	400,000 lx (LWD = 50 mm) Emitting width (Short side): 21 mm	170,000 lx (LWD = 50 mm) Emitting width (Short side): 16.5 mm	101,000 lx (LWD = 50 mm) Emitting width (Short side): 15 mm
Cooling method	Forced air (Fan)	Natural air	Natural air	Natural air
Illum. method	Convergent	Convergent	Convergent	Diffused
Relative radiance distribution				
Graph of the change in illuminance (on the optical axis)				

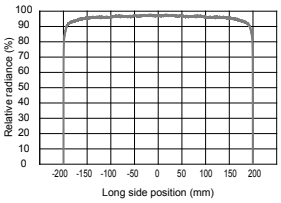
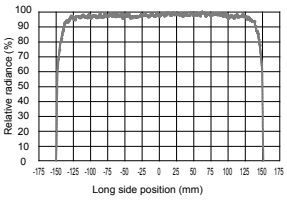
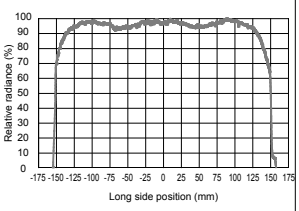
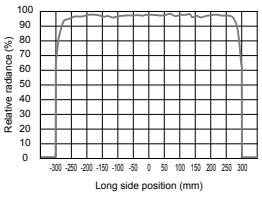
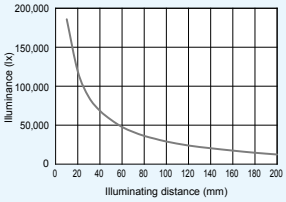
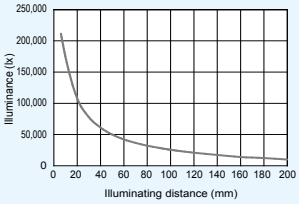
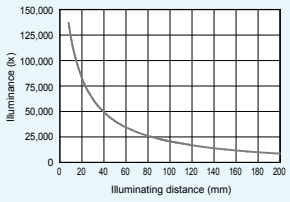
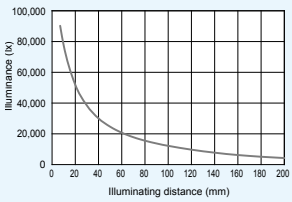
(By brightness)

Series name	LNIS-FN series	LNIS series	LNDG series
			
	Applicable Control Unit: PSCC(A) series	Applicable Control Unit: PSB3-30024	Applicable Control Unit: PSCC(A) series
	Refer to: P.167	Refer to: P.163	Refer to: P.159
Brightness	678,000 lx (LWD = 50mm) Emitting width (Short side): 23mm	310,000 lx (LWD = 50mm) Emitting width (Short side): 21mm	80,000 lx (LWD = 50mm) Emitting width (Short side): 10mm
Cooling method	Forced air (Fan)	Natural air	Natural air
Illum. method	Oblique angled (bi-directional)	Oblique angled (bi-directional)	Oblique angled (mono-directional)
Relative irradiance distribution / Relative radiance distribution			
Graph of the change in illuminance			

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

* LWD is the distance from the Light Unit to the workpiece.

(To bottom left)

	LNSD series (High uniformity type)	LT series	HLND(-TT) series	LND2 series
				
	Recommended Control Units: PD3-10024-8/PSB3-30024	Applicable Control Unit: PSB3-30024	Applicable Control Unit: PSB3-30024	Recommended Control Units: PD3/PSB series, PSB3-30024
	Refer to: P.139	Refer to: P.153	Refer to: P.147	Refer to: P.143
	56,000 lx (LWD = 50 mm) Emitting width (Short side): 15 mm	50,000 lx (LWD = 50 mm) Emitting width (Short side): 2.8 mm	48,000 lx (LWD = 50 mm) Emitting width (Short side): 7.6 mm	25,000 lx (LWD = 50 mm) Emitting width (Short side): 18.2 mm
	Natural air	Natural air	Natural air	Natural air
	Diffused	Diffused	Diffused	Diffused
				
				

(By listing)

Series name	Cooling method	Illuminating method	Refer to:
LDL2 series  Recommended Control Units: PD3/PSB series	Natural air	Direct	P.43
LDLB series  Power supply: 24 VDC input	Natural air	Direct	P.55
HLDL2 series  Recommended Control Units: PD3/PSB series, PSB3-30024	Natural air	Direct	P.59
LN series  Recommended Control Units: PD3/PSB series	Natural air	Convergent	P.137
LNV series  Recommended Control Units: PD3/PSB series	Natural air	Diffused (Coaxial illumination)	P.157

Recommended Control Units

Analog Control Units (Constant current) PSCC(A) series P.219 

Analog Control Unit (Constant Voltage) PSB3-30024 P.221 

Digital Control Units PD3 series P.189 

Analog Control Units PSB series P.199 

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

* LWD is the distance from the Light Unit to the workpiece.

Line Lights
LNSP series

Refer to our website for product details.
CCS LNSP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Uses original converging technology to achieve illumination with reduced diffusion

LED color
Custom orders accepted
Size
Custom orders accepted

LNSP-600SW

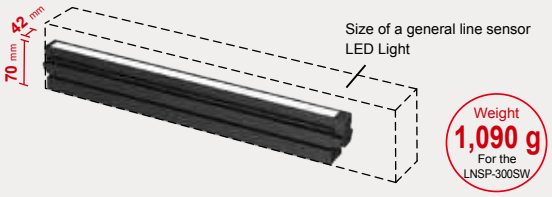
Applications Inspection for parts mounted on circuit boards, inspection for scratches on clear film, inspecting alignment for label seals, visual inspection of cans, and inspection for unevenness in sheet metal, etc.

Illuminance of 400,000 lx* with a natural air cooling type

* At the LWD of 50 mm

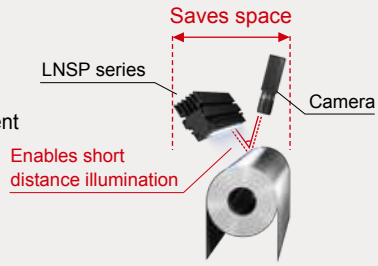
Achieving both high output and compact space

Achieved a more compact design compared to LED Lights for general high output line sensors.



Saving space for your inspection environment

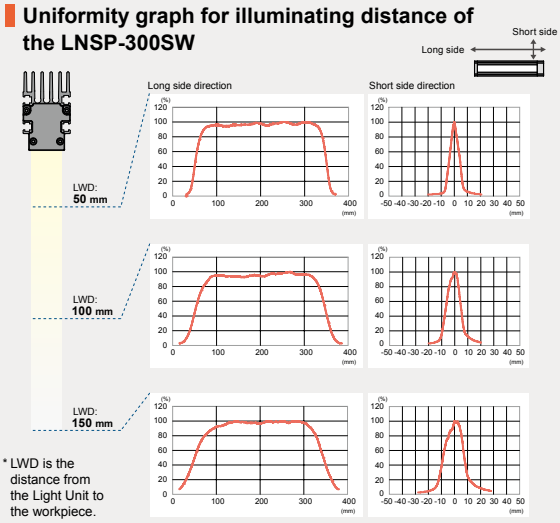
By making the Light Unit more compact, we contribute to saving space in your inspection environment or equipment environment.



Unique illuminating mechanism with little light diffusion

By controlling light diffusion through the unique illuminating mechanism, there is little change in the brightness due to distance, so you can flexibly set the distance between the workpiece and the Light Unit. Uses constant-voltage control.

Uniformity graph for illuminating distance of the LNSP-300SW

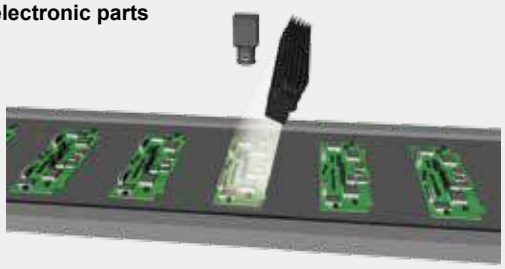


* LWD is the distance from the Light Unit to the workpiece.

*The graph included is for reference only. Actual values may vary.

Applications

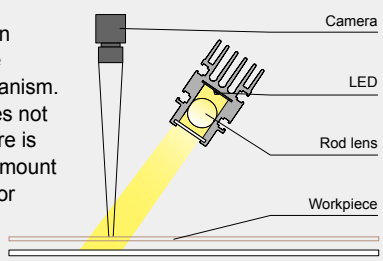
Visual inspection for circuit boards mounted with electronic parts



Example configuration

Achieves high output illumination with controlled diffusion due to this unique illuminating mechanism. Because light does not easily diffuse, there is little loss for the amount of light, allowing for illumination over long distances.

LNSP series



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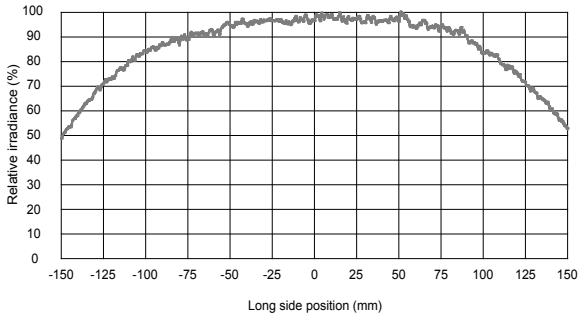
Data (Representative example)

*The graph included is for reference only. Actual values may vary.

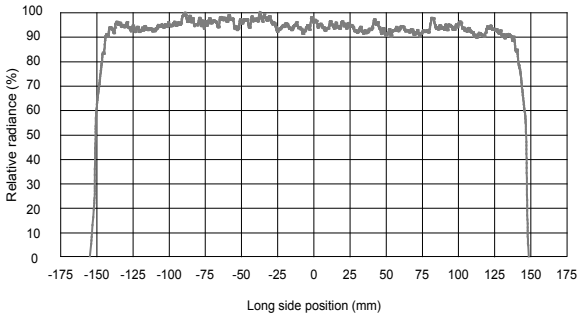
LNSP-300SW

Relative irradiance distribution



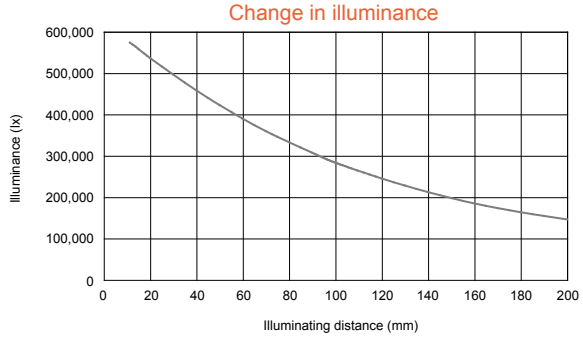
* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

Relative radiance distribution



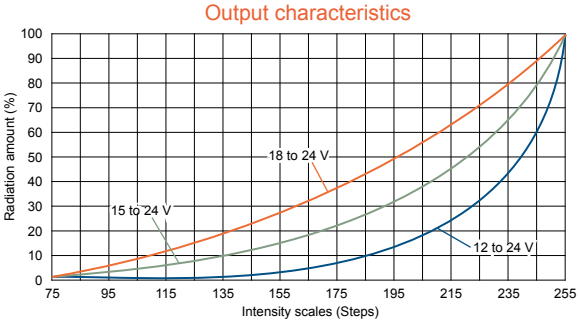
* The graph included is for reference only. Actual values may vary.

Change in illuminance



* Actual measurement values at 100% intensity in each illuminating distance.
Results for individual products may vary.

Output characteristics



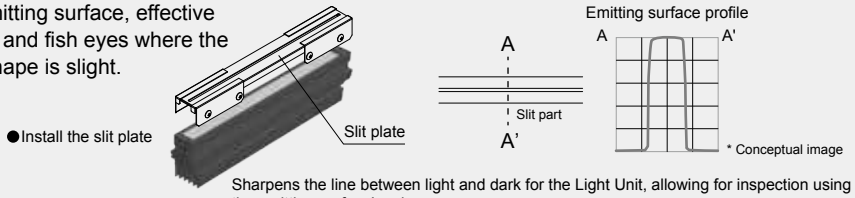
* Actual measurement values using the Analog Control Unit PSB3-30024.
Results for individual products may vary.
* Measured in each voltage range because the Analog Control Unit PSB3-30024 has a switching function for the lower limit of the output voltage.

Custom orders

Please contact your CCS sales representative.

Example 1: Slit specifications (Install a slit plate on the emitting surface)

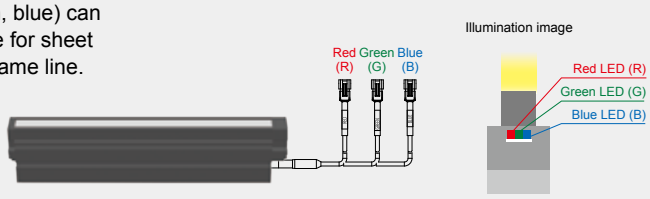
Result: Uses the edge of the emitting surface, effective for inspections for dents and fish eyes where the change in the surface shape is slight.



Sharpens the line between light and dark for the Light Unit, allowing for inspection using the emitting surface's edge.

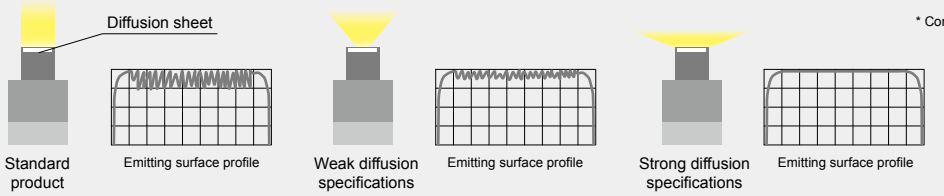
Example 2: Full color (RGB) specifications

Result: Because each emitted color (red, green, blue) can be controlled separately, this is effective for sheet inspections of different models on the same line.



Example 3: High uniformity specifications

Result: Achieved higher uniformity than a standard product by replacing the diffusion sheet.



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Inquire on our website here.
http://www.ccs-grp.com/contact/

LNSP series

Refer to our website for product details.
CCS LNSP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

	Model name	LED color	Power consumption	Correlated color temperature	Extension cables	Recommended Control Units	Weight
Standard products	LNSP-100SW	White	24 V / 21 W	5,800 K	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	430 g
	LNSP-200SW		24 V / 41 W				760 g
	LNSP-300SW		24 V / 61 W				1,090 g
	LNSP-400SW		24 V / 81 W				1,420 g
	LNSP-500SW		24 V / 101 W				1,740 g
	LNSP-600SW		24 V / 121 W				2,070 g
	LNSP-700SW		24 V / 142 W				2,400 g
	LNSP-800SW		24 V / 162 W				2,730 g
	LNSP-900SW		24 V / 182 W				3,050 g
	LNSP-1000SW		24 V / 202 W				3,380 g
Special orders	LNSP-1100SW	White	24 V / 222 W	5,800 K	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	3,700 g
	LNSP-1200SW		24 V / 242 W				4,000 g
	LNSP-1300SW		24 V / 263 W				4,300 g
	LNSP-1400SW		24 V / 283 W				4,600 g
	LNSP-1500SW		24 V / 299 W				4,900 g
	LNSP-1600SW		24 V / 324 W		FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7 x 2 *	PSB3-30024 x 2 *	5,300 g
	LNSP-1700SW		24 V / 344 W				5,700 g
	LNSP-1800SW		24 V / 364 W				6,100 g
	LNSP-1900SW		24 V / 384 W				6,500 g
	LNSP-2000SW		24 V / 404 W				6,900 g
	LNSP-2100SW		24 V / 424 W				7,300 g
	LNSP-2200SW		24 V / 444 W				7,700 g
	LNSP-2300SW		24 V / 464 W				8,100 g
	LNSP-2400SW		24 V / 484 W				8,500 g
	LNSP-2500SW		24 V / 505 W				8,900 g
	LNSP-2600SW		24 V / 526 W				9,300 g
	LNSP-2700SW		24 V / 541 W				9,700 g
	LNSP-2800SW		24 V / 562 W				10,100 g
	LNSP-2900SW		24 V / 582 W				10,500 g
	LNSP-3000SW		24 V / 598 W				10,900 g

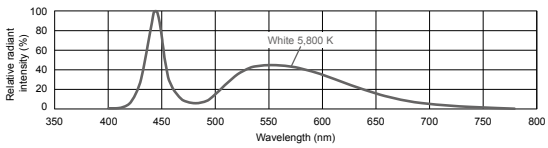
* For sizes 1,600 mm (emitting surface) or longer, a cable comes out of each end of the Light Unit.

PSB3-30024 Product Page ▶ P.221

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (red/blue/IR, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Options

Coaxial Unit

Model name	Applicable Light Unit
CU-LNSP-100-GL	LNSP-100SW
CU-LNSP-200-GL	LNSP-200SW
CU-LNSP-300-GL	LNSP-300SW
CU-LNSP-400-GL	LNSP-400SW
CU-LNSP-500-GL	LNSP-500SW

CU-LNSP Product Page ▶ P.131

Allows for imaging with illumination on the same axis as the camera.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
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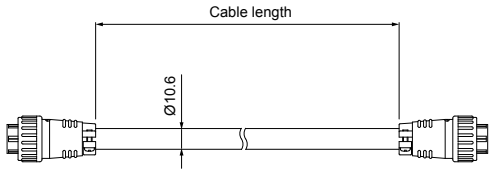
Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSB3-30024.

FCB-1.25SQ-ME7

Model name	Cable length	Weight
FCB-2-1.25SQ-ME7	2 m	430 g
FCB-3-1.25SQ-ME7	3 m	580 g
FCB-5-1.25SQ-ME7	5 m	1,000 g
FCB-10-1.25SQ-ME7	10 m	2,000 g

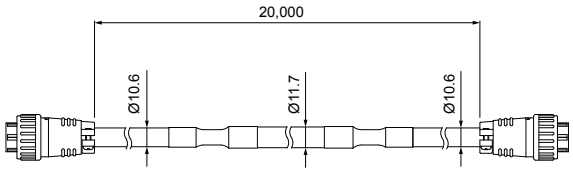
(mm)



Cable permitted bending radius: 63.6 mm

FCB-20-2.0SQ-ME7

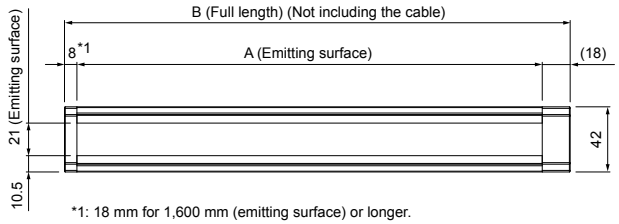
Model name	Cable length	Weight
FCB-20-2.0SQ-ME7	20 m	5,000 g



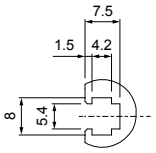
Cable permitted bending radius: 63.6 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

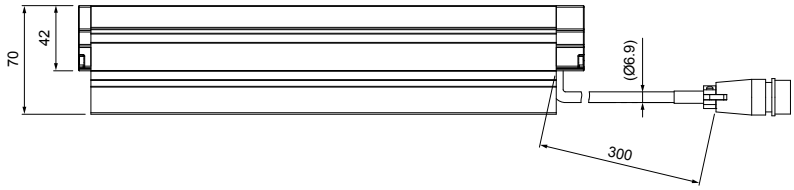
Dimensions (mm)

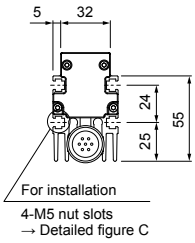


*1: 18 mm for 1,600 mm (emitting surface) or longer.



Detailed figure C





* For sizes 1,600 mm (emitting surface) or longer, a cable comes out of each end of the Light Unit.
* For sizes 1,100 mm (emitting surface) or longer, the cable radius is thick (Ø9.7).

	Model name	A (Emitting surface)	B (Full length)		Model name	A (Emitting surface)	B (Full length)
Standard products	LNSP-100SW	100	126	Special orders	LNSP-1600SW	1,600	1,636
	LNSP-200SW	200	226		LNSP-1700SW	1,700	1,736
	LNSP-300SW	300	326		LNSP-1800SW	1,800	1,836
	LNSP-400SW	400	426		LNSP-1900SW	1,900	1,936
	LNSP-500SW	500	526		LNSP-2000SW	2,000	2,036
	LNSP-600SW	600	626		LNSP-2100SW	2,100	2,136
	LNSP-700SW	700	726		LNSP-2200SW	2,200	2,236
	LNSP-800SW	800	826		LNSP-2300SW	2,300	2,336
	LNSP-900SW	900	926		LNSP-2400SW	2,400	2,436
	LNSP-1000SW	1,000	1,026		LNSP-2500SW	2,500	2,536
Special orders	LNSP-1100SW	1,100	1,126		LNSP-2600SW	2,600	2,636
	LNSP-1200SW	1,200	1,226		LNSP-2700SW	2,700	2,736
	LNSP-1300SW	1,300	1,326		LNSP-2800SW	2,800	2,836
	LNSP-1400SW	1,400	1,426		LNSP-2900SW	2,900	2,936
	LNSP-1500SW	1,500	1,526		LNSP-3000SW	3,000	3,036

LNSP series dedicated Coaxial Units
CU-LNSP series

Refer to our website for product details.
CCS CU-LNSP ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Achieves high output with coaxial illumination

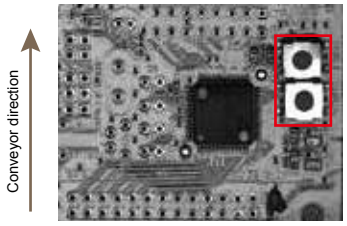

CU-LNSP-200-GL


* The Light Unit is sold separately.

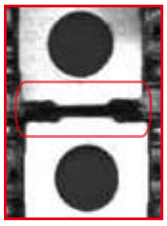
Applications Inspection for electronic parts on circuit boards, visual inspection for secondary battery separators, and inspection for damage and dents on touch panels, etc.

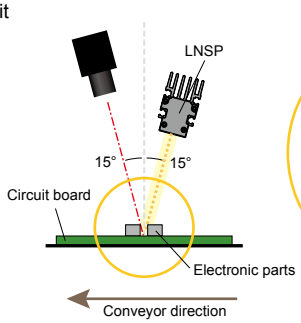
Characteristics

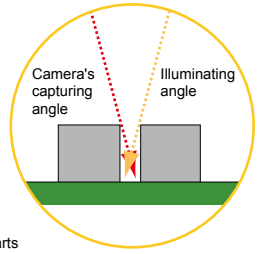
■ When imaging with V-shaped reflection: Only the LNSP Light Unit



Because the camera is diagonal with respect to the line sensor viewpoint, when capturing objects with protrusions, such as electronic parts on circuit boards, some parts enter the camera's blind spot, limiting the inspected areas.

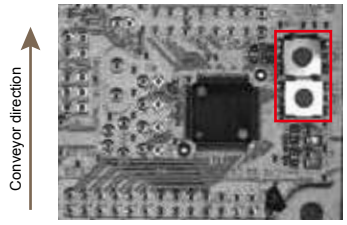

There is a shadow in the space between electronic parts, preventing visual inspection.



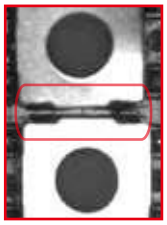


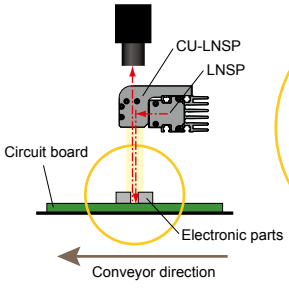
In the camera's blind spot

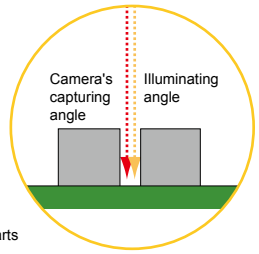
■ When imaging with coaxial illumination: CU-LNSP mounted



Because the camera is directly vertical with respect to the line sensor viewpoint, it is not affected by protrusions and can capture the image.


There is no shadow in the space between electronic parts, allowing for visual inspection.





Not in the camera's blind spot

Information about custom ordered products

The following products can support coaxial illumination via a custom product. Inquire at your CCS sales representative for details.

■ LT series ▶ P.153
* Custom products with an emitting surface that is 10 mm wide are also available.


Achieve both high uniformity and high brightness through this unique optical system. It can perform highly-accurate inspections and also supports high-speed scan rates.

■ LNSP-FN series ▶ P.133


High output type of the LNSP series. Forced air cooling (fan cooling). Achieved a brightness of 900,000 lx (at LWD = 50 mm).

■ LN-HK-STK series ▶ P.138

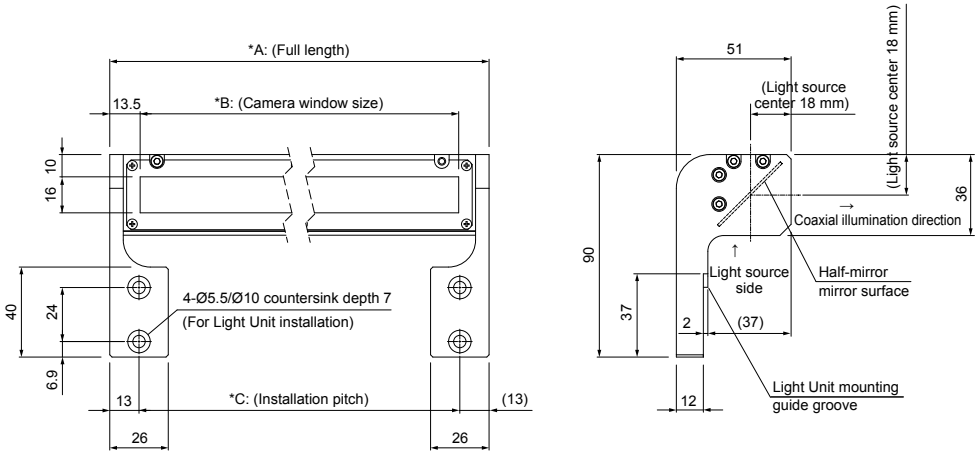

A cylindrical lens allows for illuminating with a convergent line of light. By changing the position of the lens unit on the tip, you can freely set the converging length or the converging width for the illuminated light.

We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Lineup

Model name	Weight (max.)	Applicable Light Unit	
CU-LNSP-100-GL	250 g	LNSP-100SW	LNSP Series Product Page ▶ P.127
CU-LNSP-200-GL	350 g	LNSP-200SW	
CU-LNSP-300-GL	450 g	LNSP-300SW	
CU-LNSP-400-GL	550 g	LNSP-400SW	
CU-LNSP-500-GL	650 g	LNSP-500SW	

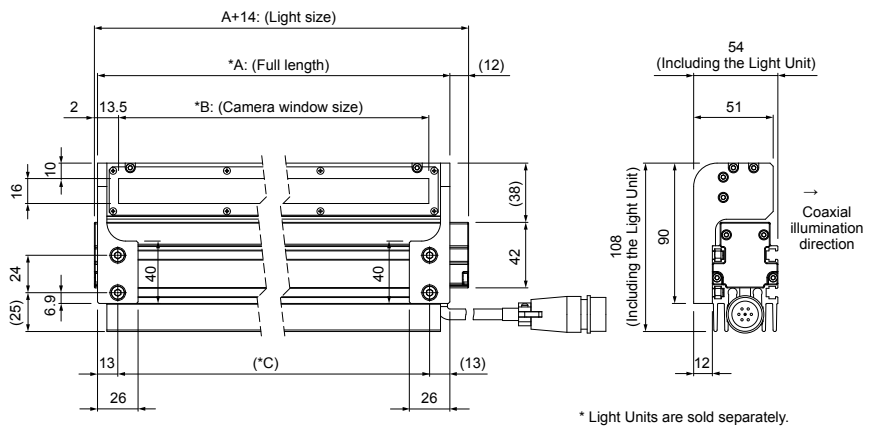
Dimensions (mm)



* Four M5 screws and nuts are included for installing this product on the Light Unit.

Model name	Dimensions *A	Dimensions *B	Dimensions *C
CU-LNSP-100-GL	112	85	86
CU-LNSP-200-GL	212	185	186
CU-LNSP-300-GL	312	285	286
CU-LNSP-400-GL	412	385	386
CU-LNSP-500-GL	512	485	486

Dimensions when the Light Unit is mounted (mm)



* Light Units are sold separately.

Weight when the Light Unit is mounted (max.)	
CU-LNSP-100-GL + LNSP-100SW	680 g
CU-LNSP-200-GL + LNSP-200SW	1,110 g
CU-LNSP-300-GL + LNSP-300SW	1,540 g
CU-LNSP-400-GL + LNSP-400SW	1,970 g
CU-LNSP-500-GL + LNSP-500SW	2,390 g

Line Lights
LNSP-FN series

Refer to our website for product details.
CCS LNSP-FN ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Uses original converging technology to achieve illumination with reduced diffusion
High output Line Lights with forced air cooling (fan cooling)

LED color
Custom orders accepted

Size
Custom orders accepted

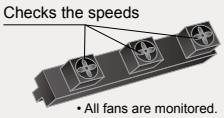
LNSP-400SW-FN

Applications Inspection for parts mounted on circuit boards, inspection for scratches on clear film, inspecting sheet alignment, inspection of unevenness in sheet metal, and visual inspection for plastic products, etc.

Avoid trouble with error detection

1) Error detection for cooling fans

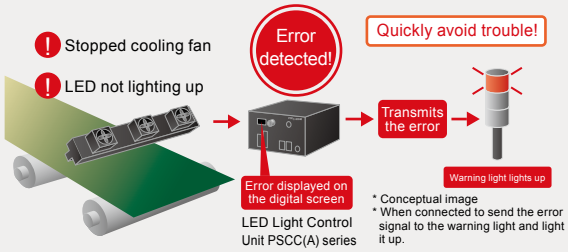
An error is detected should a fault occur, such as insufficient speed or a stop in the cooling fans.



• All fans are monitored.

2) Error detection for the LEDs

Detects dead LEDs due to an open in the Light Unit circuit or a shorted LED.



LED Light Control Unit PSCC(A) series

* Conceptual image
* When connected to send the error signal to the warning light and light it up.

* Error detection is a function included with the PSCC(A) series, the recommended Control Units.

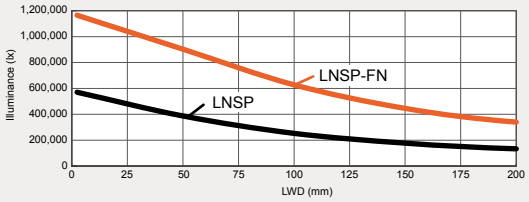
Illuminance of 900,000 lx with forced air cooling (fan cooling)

Perfect for applications that demand high-speed image processing. Also allows for even imaging with a high degree of uniformity.

Comparison of illuminance for the LNSP and LNSP-FN

Comparison of imaging of paper (Japanese paper)

* Brightness varies based on the camera's spectral sensitivity.

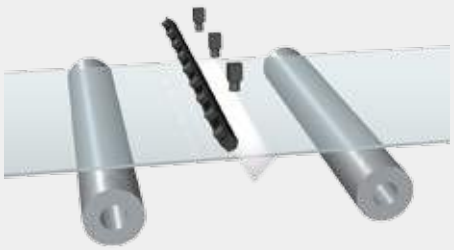


* Actual measurement values at 100% intensity in each illuminating distance. Results for individual products may vary.
* LWD is the distance from the Light Unit to the workpiece.

*The graph included is for reference only. Actual values may vary.

Applications

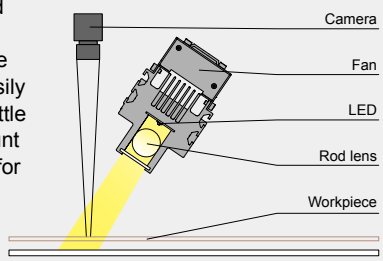
Glass damage inspection



Example configuration

High-output Line Lights with forced air cooling (fan cooling). Because light does not easily diffuse, there is little loss for the amount of light, allowing for illumination over long distances.

LNSP-FN series



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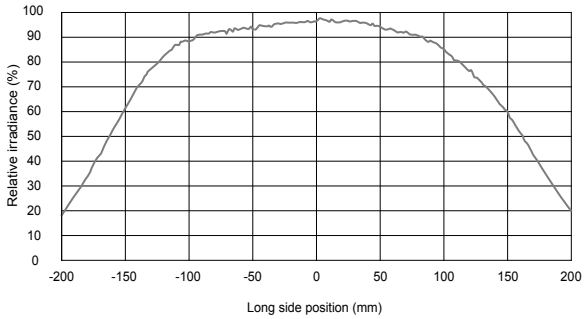
http://www.ccs-grp.com/dl/

Data (Representative example)

*The graph included is for reference only. Actual values may vary.

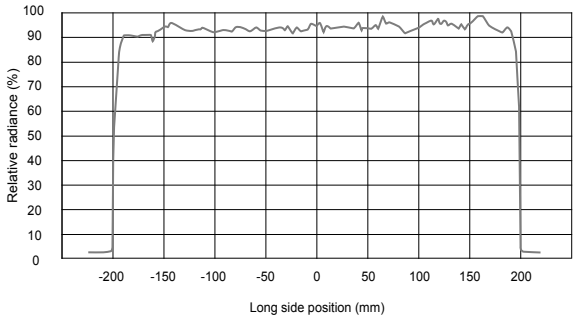
LNSP-400SW-FN

Relative irradiance distribution



* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

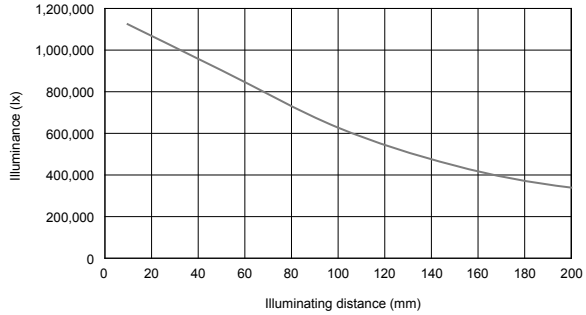
Relative radiance distribution



* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

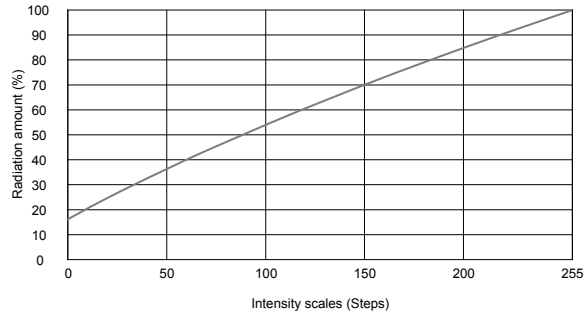
LNSP-1500SW-FN

Change in illuminance



* Actual measurement values at 100% intensity in each illuminating distance.
Results for individual products may vary.

Output characteristics



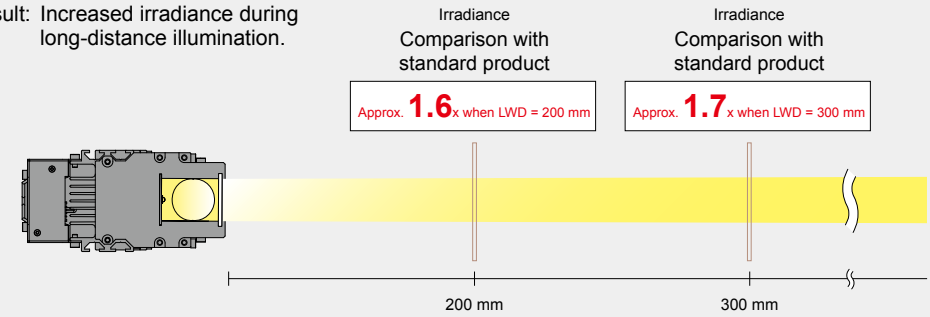
* Actual measurement values using the Analog Control Unit PSCC-60048(A).
Results for individual products may vary.

Custom orders

Please contact your CCS sales representative.

Example 1: Changes specifications for the rod lens diameter

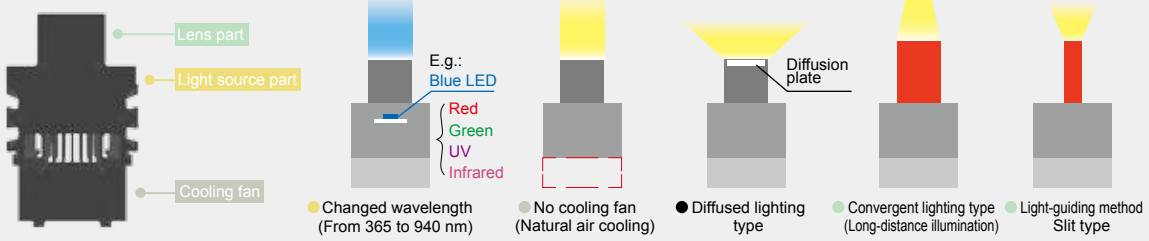
Result: Increased irradiance during long-distance illumination.



* LWD is the distance from the Light Unit to the workpiece.

Example 2: Changes specifications to match application

Allows for customization including light source part



LNSP-FN series

Refer to our website for product details.
CCS LNSP-FN ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

	Model name	LED color	Power consumption (Including the fan)	Correlated color temperature	Extension cables	Recommended Control Units	Weight
Standard products	LNSP-100SW-FN	White	41 W	5,800 K	QCBM / QCB	PSCC-30048(A) / PSCC-60048(A)	900 g
	LNSP-200SW-FN		81 W				1,400 g
	LNSP-300SW-FN		117 W				1,900 g
	LNSP-400SW-FN		157 W				2,400 g
	LNSP-500SW-FN		192 W				2,900 g
	LNSP-600SW-FN		233 W				3,400 g
	LNSP-700SW-FN		268 W				3,900 g
	LNSP-800SW-FN		309 W				4,400 g
	LNSP-900SW-FN		345 W				4,900 g
	LNSP-1000SW-FN		384 W				5,500 g
	LNSP-1100SW-FN		425 W			PSCC-60048(A)	6,000 g
	LNSP-1200SW-FN		460 W				6,500 g
	LNSP-1300SW-FN		501 W				7,000 g
	LNSP-1400SW-FN		536 W				7,500 g
	LNSP-1500SW-FN		576 W				8,000 g
Special orders	LNSP-1600SW-FN	White	613 W	5,800 K	QCB x 2 *	PSCC-60048(A) x 2 *	8,800 g
	LNSP-1700SW-FN		652 W				9,300 g
	LNSP-1800SW-FN		689 W				9,800 g
	LNSP-1900SW-FN		728 W				10,300 g
	LNSP-2000SW-FN		764 W				10,900 g
	LNSP-2100SW-FN		804 W				11,400 g
	LNSP-2200SW-FN		844 W				11,900 g
	LNSP-2300SW-FN		881 W				12,400 g
	LNSP-2400SW-FN		920 W				12,900 g
	LNSP-2500SW-FN		956 W				13,400 g
	LNSP-2600SW-FN		996 W				13,900 g
	LNSP-2700SW-FN		1,032 W				14,400 g
	LNSP-2800SW-FN		1,071 W				14,900 g
	LNSP-2900SW-FN		1,108 W				15,400 g
	LNSP-3000SW-FN		1,148 W				15,900 g

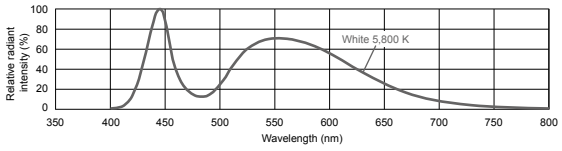
* For sizes 1,600 mm (emitting surface) or longer, a cable comes out of each end of the Light Unit.

PSCC(A) Series Product Page ▶ P.219

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (red/blue/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

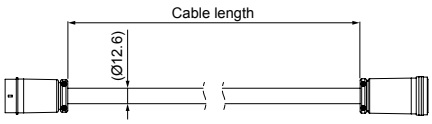
Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSCC(A) series.

QCBM

(mm)

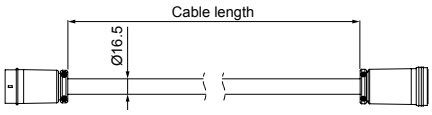
Model name	Cable length	Weight	Applicable Control Unit
QCBM-2	2 m	800 g	PSCC-30048(A)
QCBM-3	3 m	1,000 g	
QCBM-5	5 m	1,500 g	
QCBM-10	10 m	2,700 g	
QCBM-20	20 m	5,000 g	



Cable permitted bending radius: 75.6 mm

QCB

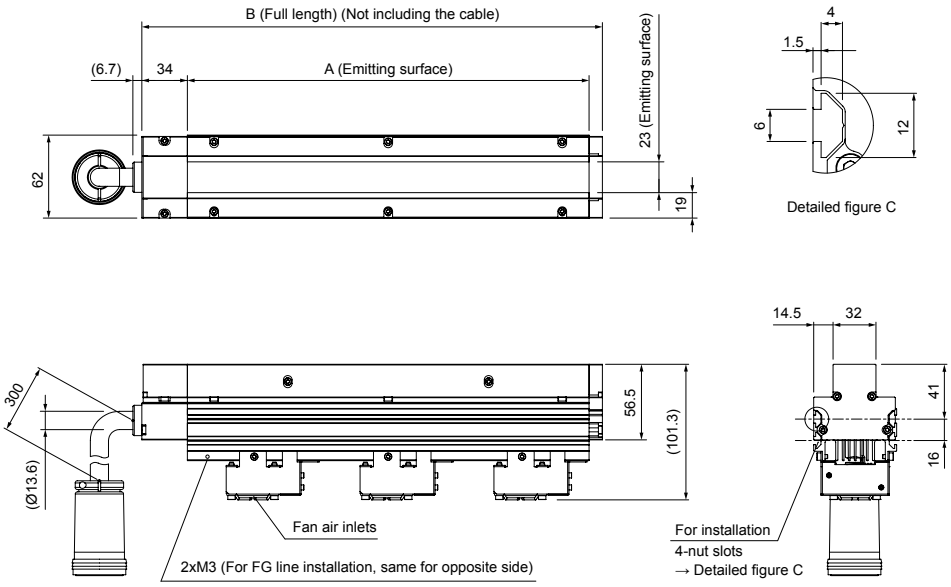
Model name	Cable length	Weight	Applicable Control Unit
QCB-2	2 m	1,100 g	PSCC-60048(A)
QCB-3	3 m	1,500 g	
QCB-5	5 m	2,400 g	
QCB-10	10 m	4,600 g	
QCB-20	20 m	8,900 g	



Cable permitted bending radius: 99 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)



* For sizes 1,600 mm (emitting surface) or longer, a cable comes out of each end of the Light Unit.

	Model name	A (Emitting surface)	B (Full length)		Model name	A (Emitting surface)	B (Full length)
Standard products	LNSP-100SW-FN	100	144	Special orders	LNSP-1600SW-FN	1,600	1,668
	LNSP-200SW-FN	200	244		LNSP-1700SW-FN	1,700	1,768
	LNSP-300SW-FN	300	344		LNSP-1800SW-FN	1,800	1,868
	LNSP-400SW-FN	400	444		LNSP-1900SW-FN	1,900	1,968
	LNSP-500SW-FN	500	544		LNSP-2000SW-FN	2,000	2,068
	LNSP-600SW-FN	600	644		LNSP-2100SW-FN	2,100	2,168
	LNSP-700SW-FN	700	744		LNSP-2200SW-FN	2,200	2,268
	LNSP-800SW-FN	800	844		LNSP-2300SW-FN	2,300	2,368
	LNSP-900SW-FN	900	944		LNSP-2400SW-FN	2,400	2,468
	LNSP-1000SW-FN	1,000	1,044		LNSP-2500SW-FN	2,500	2,568
	LNSP-1100SW-FN	1,100	1,144		LNSP-2600SW-FN	2,600	2,668
	LNSP-1200SW-FN	1,200	1,244		LNSP-2700SW-FN	2,700	2,768
	LNSP-1300SW-FN	1,300	1,344		LNSP-2800SW-FN	2,800	2,868
	LNSP-1400SW-FN	1,400	1,444		LNSP-2900SW-FN	2,900	2,968
	LNSP-1500SW-FN	1,500	1,544		LNSP-3000SW-FN	3,000	3,068

Line Lights
LN series

Refer to our website for product details.
CCS LN ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides converged line lighting

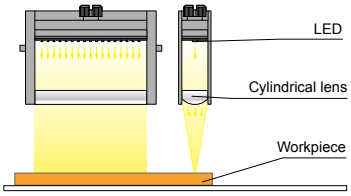
LED color
Custom orders accepted
Size
Custom orders accepted

Applications Visual inspection for film circuit boards, inspection for faults in non-woven fabrics, inspection for parts mounted on circuit boards, visual inspection for printed objects, and visual inspection for plastic products, etc.

Characteristics

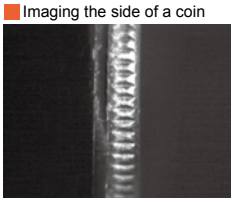
Transmits light illuminated from the LEDs through the cylindrical lens on the tip for converged line lighting.

Example configuration (LN-60)

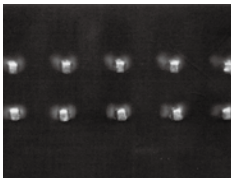


We accept custom orders.
Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

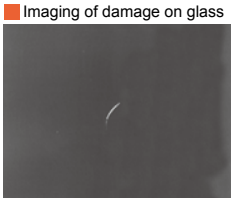
Imaging the side of a coin



Imaging for measuring width of a connector pin



Imaging of damage on glass



Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LN-60RD2	Red	24 V / 2.1 W	630 nm	–	PD3* CC-ST-1024 PSB POD*1	130 g
LN-60SW2	White	24 V / 1.0 W	5,500 K			
LN-60BL2	Blue		470 nm			
LN-60GR2	Green		525 nm			
LN-200RD2	Red	24 V / 3.1 W	630 nm			500 g
LN-200SW2	White		5,500 K			
LN-200BL2	Blue		470 nm			
LN-200GR2	Green		525 nm			

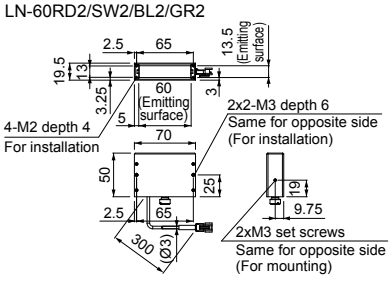
* Custom products with a PWM frequency of 500 kHz are available for Digital Control Unit PD3 series. Please contact your CCS sales representative for details.

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

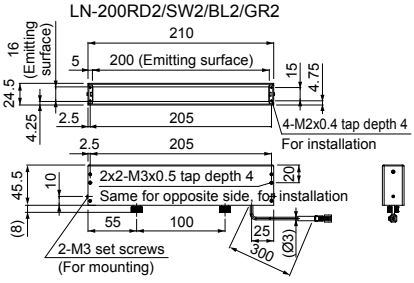
*1: For information on the combination of Light Units and POD-series Control Unit, please refer to our website. http://www.ccs-grp.com/lnk/qr/pod

Dimensions (mm)

LN-60RD2/SW2/BL2/GR2



LN-200RD2/SW2/BL2/GR2



You can change the connectors of the Light Unit cable.
Choose between M12 connectors and flying leads.
Refer to P.123 for details.

We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
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http://www.ccs-grp.com/dl/

Line Lights
LN-HK series

Refer to our website for product details.
CCS LN-HK ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides converged line lighting (High output type)

LED color
Custom orders accepted
Size
Custom orders accepted


LN-200SW2-HK-STK


LN-60SW2-HK-STK

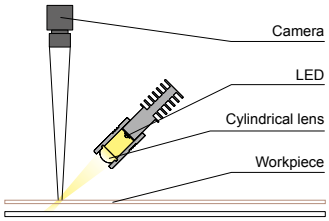
Applications Visual inspection for film circuit boards, inspection for faults in non-woven fabrics, inspection for parts mounted on circuit boards, visual inspection for printed objects, and visual inspection for plastic products, etc.

Characteristics

Transmits light illuminated from the LEDs through the cylindrical lens on the tip for converged line lighting.

We accept custom orders. Please feel free to inquire.
- Change to format
- Increase brightness
- Change to wavelength, etc.

Example configuration (LN-60SW2-HK-STK)



Applications

Visual inspection for film circuit boards

Inspection for faults in non-woven fabrics

Lineup

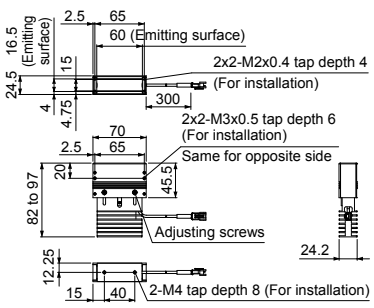
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LN-60SW2-HK-STK	White	24 V / 6.1W	5,500 K	–	PD3 / CC-ST-1024* / PSB	250 g
LN-200SW2-HK-STK	White	24 V / 22 W	5,500 K		* Cannot be used with the LN-200SW2-HK-STK.	750 g

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

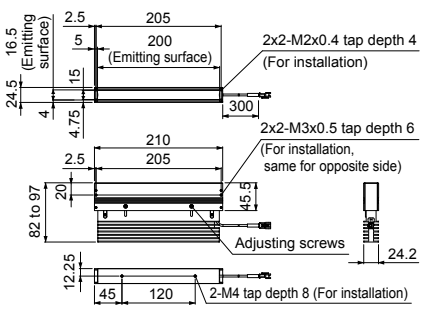
* Custom products with a PWM frequency of 500 kHz are available for Digital Control Unit PD3 series. Please contact your CCS sales representative for details.

Dimensions (mm)

LN-60SW2-HK-STK



LN-200SW2-HK-STK



You can change the connectors of the Light Unit cable.
Choose between M12 connectors and flying leads.
Refer to P.123 for details.

You can inquire using our website.
Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here.
http://www.ccs-grp.com/contact/

Line Lights
LNSD series

Refer to our website for product details.
CCS LNSD ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Highly-versatile Line Lights with a variety of uses

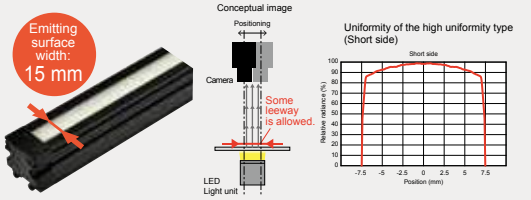
LED color
Custom orders accepted
Size
Custom orders accepted

LNSD-400SW LNSD-400SW-HU LNSD-600RD LNSD-800BL

Applications Inspection for dents/foreign-material/fish-eye-holes on clear film, inspection for blots/unevenness/scratches on metallic foil, inspection for oil-sots/holes/edge-breaking on paper, inspection for blots/mixing-of-hairs/crude-density on non-woven fabric, etc.

Easy-to-setup, compact, and lightweight

The wide and uniform emitting surface facilitates the positioning of the camera. You can improve the efficiency of the setting work.



Compact and lightweight

Stable quality even in a harsh environment

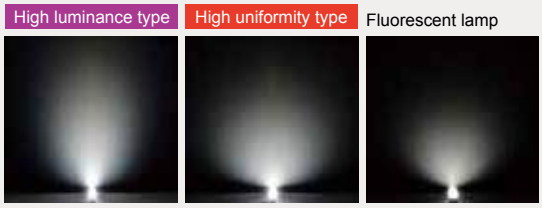
Operation temp. 50℃ allowed

Heat resistant design for a high temperature environment
- Optimized case design for heat dissipation
- Heat resistant cable and diffusion plate
- Other components for thorough heat resistance

* Also make sure the operating temperature of the Control Unit and the optional accessories.

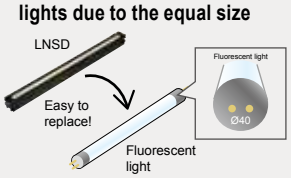
Optimum for replacing your fluorescent lights

Excellent brightness and the same uniformity as a fluorescent light

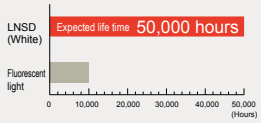


Measuring condition: 100% intensity, short side

Great for replacing fluorescent lights due to the equal size

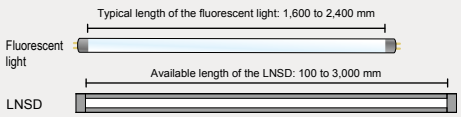


Life time comparison



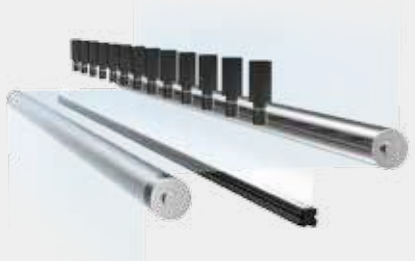
* Light intensity: 70%, Operation temperature: 50°C, Calculated value where the light output drops to 50% Actual values may vary.
* The life time of the fluorescent light is estimated as 10,000 hours according to CCS's research.

Supports 1,600 to 2,400 mm length as with the fluorescent light



Applications

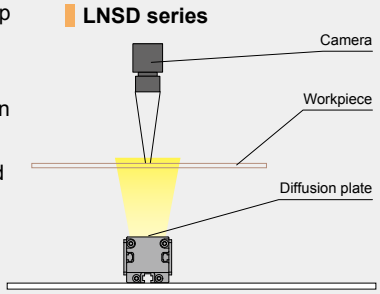
Foreign material inspection for clear film



Example configuration

Light from the chip LEDs on the flat boards passes through a diffusion plate to produce a band of diffused illumination.

LNSD series



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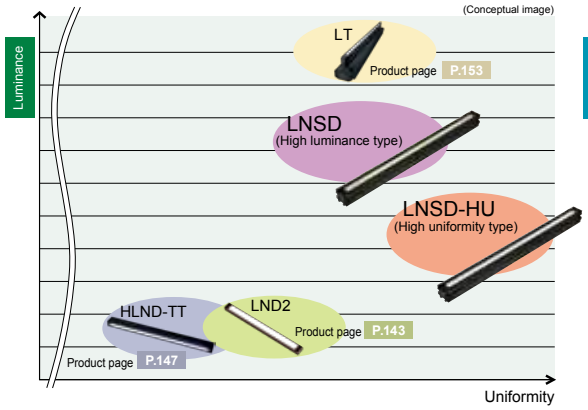
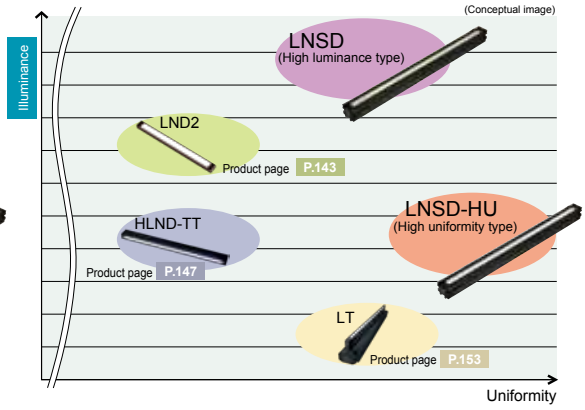
Download here. http://www.ccs-grp.com/dl/

Comparing performance of the LNSD with other CCS Line Lights

Comparison between the luminance and the uniformity



Comparison between the illuminance and the uniformity



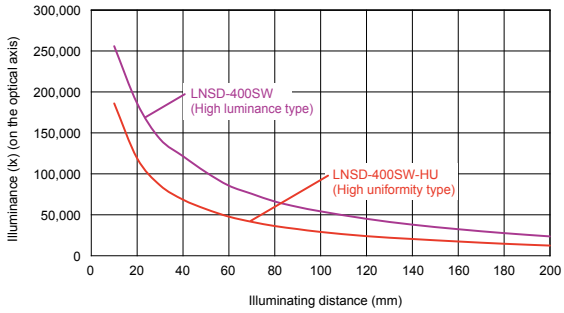
Data (Representative example)

*The graph included is for reference only. Actual values may vary.

Brightness

Series name	Luminance	Illuminance
LNSD-400SW (High luminance type)	265,000 cd/m²	101,000 lx LWD=50 mm
LNSD-400SW-HU (High uniformity type)	125,000 cd/m²	56,000 lx LWD=50 mm

Change in illuminance

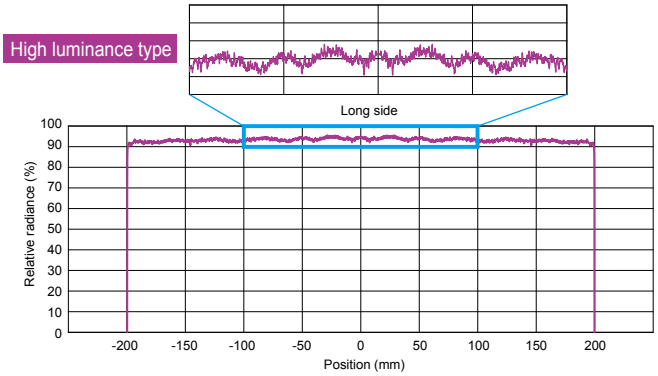


* Actual measurement values at 100% intensity in each illuminating distance. Results for individual products may vary.

LNSD-400SW

Relative radiance distribution

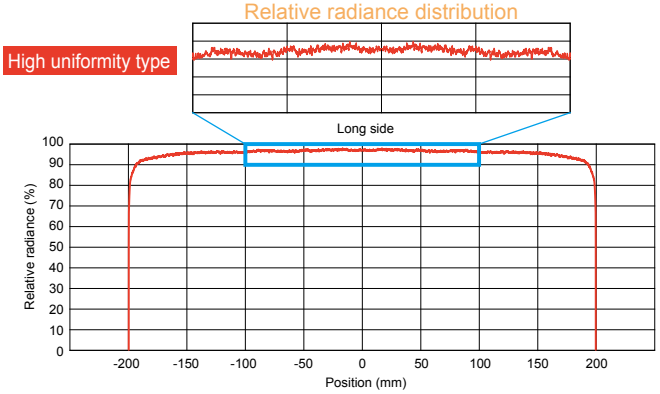
High luminance type

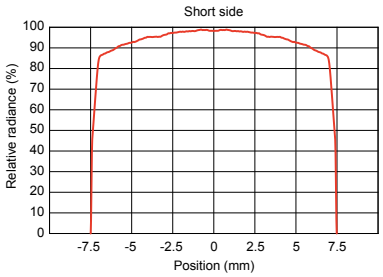


LNSD-400SW-HU

Relative radiance distribution

High uniformity type





LNSD series

Refer to our website for product details.

CCS LNSD ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

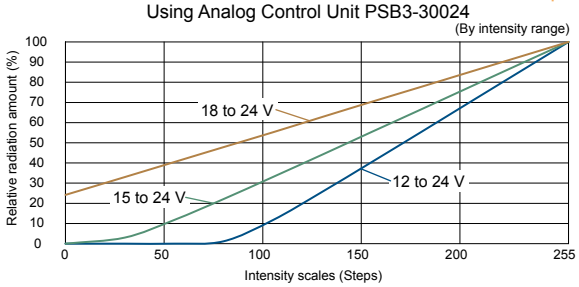
Data (Representative example)

*The graph included is for reference only. Actual values may vary.

LNSD-400SW/LNSD-400SW-HU

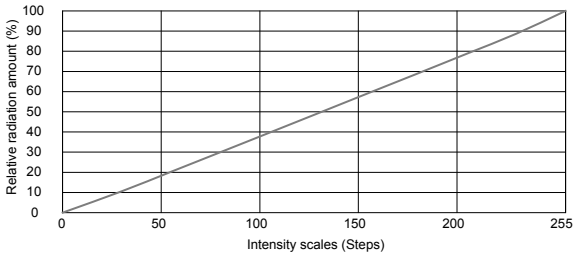
Output characteristics

Using Analog Control Unit PSB3-30024



* Actual measurement values using the Analog Control Unit PSB3-30024. Results for individual products may vary.

Using Digital Control Unit PD3-10024-8



* Actual measurement values using the Digital Control Unit PD3-10024-8. Results for individual products may vary.
* Custom products with a PWM frequency of 500 kHz are available for Digital Control Unit PD3 series. Please contact your CCS sales representative for details.

Lineup

Model name: High luminance type LNSD-□□□□○○ (Emitting surface length) (LED color) High uniformity type LNSD-□□□□○○-HU (Emitting surface length) (LED color)

Model name	LED color	Power consumption	Peak wavelength /Correlated temp.	Extension cable	Recommended Control Units	Weight
LNSD-100SW/RD/BL	White (SW) Red (RD) Blue (BL)	24 V / 11 W	White: 6,600 K Red: 634 nm Blue: 470 nm			200 g
LNSD-200SW/RD/BL		24 V / 21 W				320 g
LNSD-300SW/RD/BL		24 V / 31 W				460 g
LNSD-400SW/RD/BL		24 V / 41 W			PSB3-30024	590 g
LNSD-500SW/RD/BL		24 V / 51 W			PD3-10024-8 *2	720 g
LNSD-600SW/RD/BL		24 V / 61 W		FCB-EL2		860 g
LNSD-700SW/RD/BL		24 V / 71 W				990 g
LNSD-800SW/RD/BL		24 V / 81 W				1,120 g
LNSD-900SW/RD/BL		24 V / 91 W				1,240 g
LNSD-1000SW/RD/BL		24 V / 101 W				1,370 g
LNSD-1100SW/RD/BL		24 V / 111 W				1,500 g
LNSD-1200SW/RD/BL		24 V / 121 W				1,640 g
LNSD-1300SW/RD/BL		White: 131 W / Red: 132 W / Blue: 131 W				1,770 g
LNSD-1400SW/RD/BL		White: 141 W / Red: 142 W / Blue: 141 W				1,910 g
LNSD-1500SW/RD/BL		White: 151 W / Red: 152 W / Blue: 151 W				2,040 g
LNSD-1600SW/RD/BL		White: 161 W / Red: 162 W / Blue: 161 W				2,170 g
LNSD-1700SW/RD/BL		White: 171 W / Red: 172 W / Blue: 171 W				2,300 g
LNSD-1800SW/RD/BL		White: 181 W / Red: 182 W / Blue: 181 W				2,440 g
LNSD-1900SW/RD/BL		24 V / 192 W				2,570 g
LNSD-2000SW/RD/BL		24 V / 202 W		FCB-EL2 x 2 *1	PSB3-30024	2,700 g
LNSD-2100SW/RD/BL		24 V / 212 W				2,830 g
LNSD-2200SW/RD/BL		24 V / 222 W				2,960 g
LNSD-2300SW/RD/BL		24 V / 232 W				3,090 g
LNSD-2400SW/RD/BL		24 V / 242 W				3,220 g
LNSD-2500SW/RD/BL		White: 230 W / Red: 227 W / Blue: 230 W				3,350 g
LNSD-2600SW/RD/BL		White: 239 W / Red: 236 W / Blue: 239 W				3,480 g
LNSD-2700SW/RD/BL		White: 248 W / Red: 245 W / Blue: 248 W				3,610 g
LNSD-2800SW/RD/BL		White: 257 W / Red: 255 W / Blue: 257 W				3,740 g
LNSD-2900SW/RD/BL		White: 267 W / Red: 264 W / Blue: 267 W				3,870 g
LNSD-3000SW/RD/BL		White: 276 W / Red: 273 W / Blue: 276 W				4,000 g

High luminance type / High uniformity type (Add "-HU" at the end of the model name.)

Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*1 There are two input connectors for the Light Unit whose length of the emitting surface is more than 1,200 mm. To install the Light Unit, use two Extension cables of the same length. Using the cables of different length may cause uneven emission due to a difference in voltage drop by DC resistance of the cables.
*2 Custom products with a PWM frequency of 500 kHz are available for Digital Control Unit PD3 series. Please contact your CCS sales representative for details.

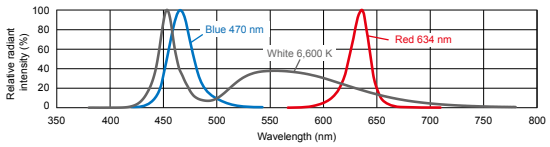
The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (green/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

LED properties

Light spectrum



If using a sharp-cut filter, please use the R60 (option). For details about the sharp-cut filter, refer to P.223.

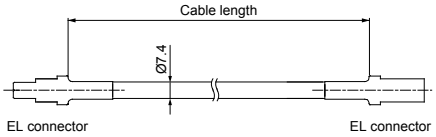
Be sure to read the “Instruction Guide” included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

Extension cables

FCB-EL2

Model name	Cable length	Model name	Cable length
FCB-1-EL2	1 m	FCB-5-EL2	5 m
FCB-2-EL2	2 m	FCB-10-EL2	10 m
FCB-3-EL2	3 m	FCB-15-EL2	15 m

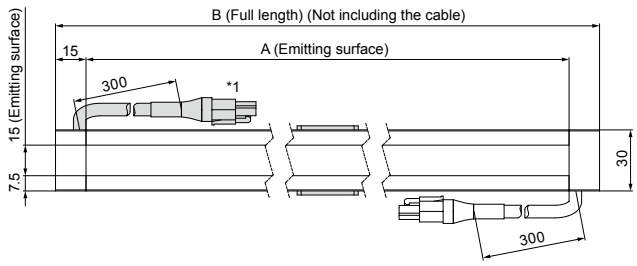
Extension Cables Page ▶ P.230

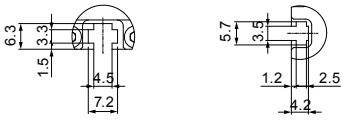


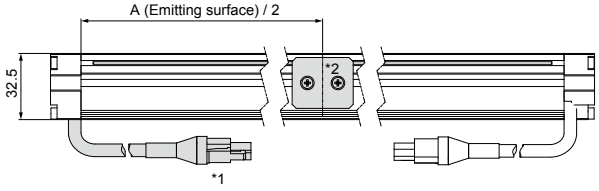
Cable permitted bending radius: 29.6 mm

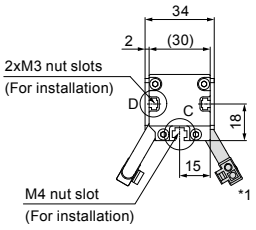
* The above cable permitted bending radius is a reference value. Actual value may vary.

Dimensions (mm)









*1 There are two connectors only for the Light Unit whose length of the emitting surface is more than 1,200 mm.

*2 There are reinforcing metal fittings only for the Light Unit whose length of the emitting surface is more than 1,600 mm.

	Model name	A (Emitting surface)	B (Full length)		Model name	A (Emitting surface)	B (Full length)
High luminance type / High uniformity type (Add "-HU" at the end of the model name.)	LNSD-100SW/RD/BL	100	130	High luminance type / High uniformity type (Add "-HU" at the end of the model name.)	LNSD-1600SW/RD/BL	1,600	1,630
	LNSD-200SW/RD/BL	200	230		LNSD-1700SW/RD/BL	1,700	1,730
	LNSD-300SW/RD/BL	300	330		LNSD-1800SW/RD/BL	1,800	1,830
	LNSD-400SW/RD/BL	400	430		LNSD-1900SW/RD/BL	1,900	1,930
	LNSD-500SW/RD/BL	500	530		LNSD-2000SW/RD/BL	2,000	2,030
	LNSD-600SW/RD/BL	600	630		LNSD-2100SW/RD/BL	2,100	2,130
	LNSD-700SW/RD/BL	700	730		LNSD-2200SW/RD/BL	2,200	2,230
	LNSD-800SW/RD/BL	800	830		LNSD-2300SW/RD/BL	2,300	2,330
	LNSD-900SW/RD/BL	900	930		LNSD-2400SW/RD/BL	2,400	2,430
	LNSD-1000SW/RD/BL	1,000	1,030		LNSD-2500SW/RD/BL	2,500	2,530
	LNSD-1100SW/RD/BL	1,100	1,130		LNSD-2600SW/RD/BL	2,600	2,630
	LNSD-1200SW/RD/BL	1,200	1,230		LNSD-2700SW/RD/BL	2,700	2,730
	LNSD-1300SW/RD/BL	1,300	1,330		LNSD-2800SW/RD/BL	2,800	2,830
	LNSD-1400SW/RD/BL	1,400	1,430		LNSD-2900SW/RD/BL	2,900	2,930
	LNSD-1500SW/RD/BL	1,500	1,530		LNSD-3000SW/RD/BL	3,000	3,030

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Line Lights
LND2 series

Refer to our website for product details.
CCS LND2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light from an emitting surface equipped with LEDs in straight lines

LED color
Custom orders accepted
Size
Custom orders accepted

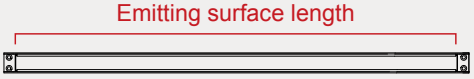
Applications Inspection for damage or dents in metal cylindrical parts, inspection for damage or dents in motor shafts, inspection for foreign material on clear film, dimension measuring for resin molded parts, and dimension measuring for sheet steel, etc.

Suitable for all types of line sensor inspections

This Line Light achieves brightness equivalent to a fluorescent lamp while keeping the price down.

Emitting surface length

You can select from 101 mm, 201 mm, 301 mm, 401 mm, 501 mm, 603 mm, 703 mm, 803 mm, 903 mm, 1003 mm, 1103 mm and 1,203 mm.



For a custom order, we can create an emitting surface with a length with a 100 mm pitch.

LED color

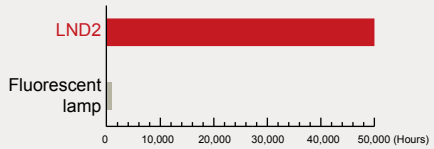
For emitted LED color, we have a lineup consisting of:
Red and White
Select your Light Unit based on the details of your inspections.

For a custom order, we can create LEDs that emit blue, green, IR, or UV.

Also perfect for replacing fluorescent lamps

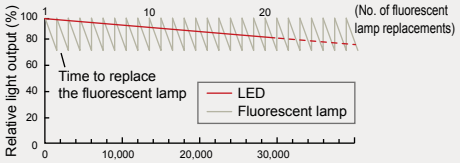
LEDs have a long service life, so the bulbs don't burn out like fluorescent lamps, thus reducing costs for lamp replacement and work hours.

Comparison of service life between the LND2 (red) and a fluorescent lamp



* Calculated values with an intensity of 100%, ambient temperature of 25ºC and a light output drop of up to 50%. Actual values may vary.
* Assuming the service life of a fluorescent lamp is 1,500 hours.

Change in the amount of light from the LEDs and work hours for replacing fluorescent lamps



* Imaging comparing the change in LED light and a fluorescent lamp that is replaced every 1,500 hours.

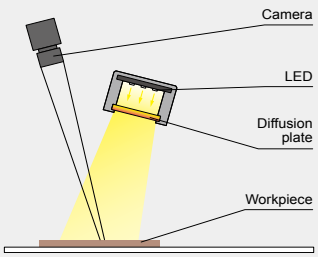
Applications

Foreign material inspection for clear film

Example configuration

Provides diffused light with a high degree of uniformity by mounting LEDs with high density.

LND2 series



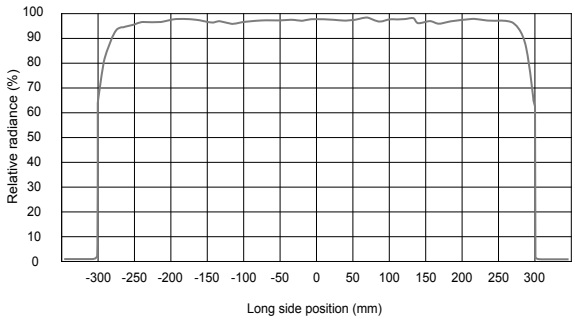
We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Data (Representative example)

*The graph included is for reference only. Actual values may vary.

LND2-600SW

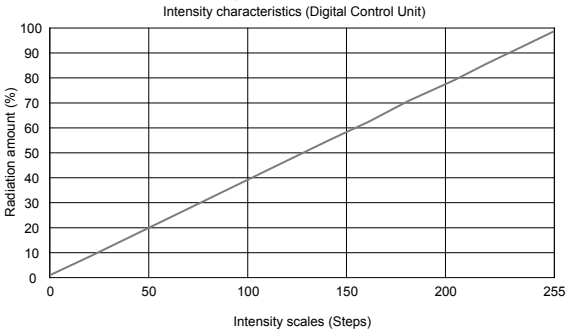
Relative radiance distribution



* The graph included is for reference only. Actual values may vary.

LND2-300SW

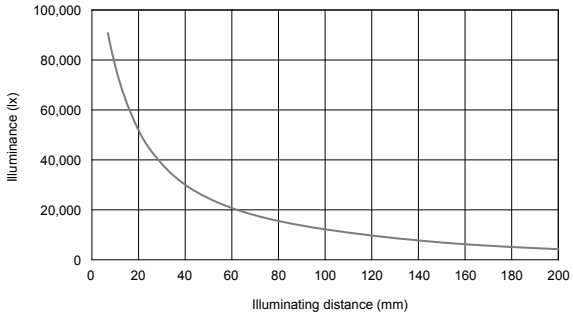
Output characteristics



* Actual measurement values using the Digital Control Unit PD3 series.
Results for individual products may vary.

LND2-300SW

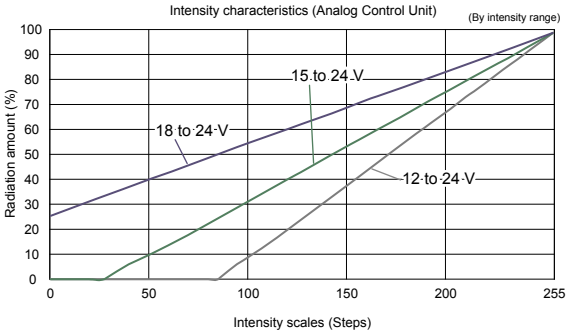
Change in illuminance



* Actual measurement values at 100% intensity in each illuminating distance.
Results for individual products may vary.

LND2-900SW

Output characteristics



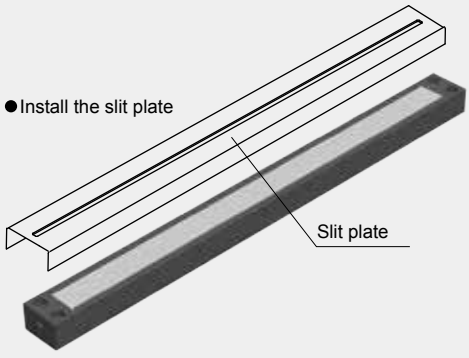
* Actual measurement values using the Analog Control Unit PSB3-30024.
Results for individual products may vary.
* Measured in each voltage range because the Analog Control Unit PSB3-30024 has a switching function for the lower limit of output voltage.

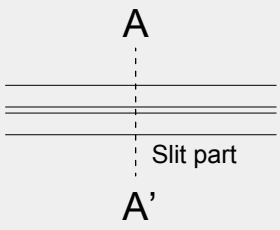
Custom order

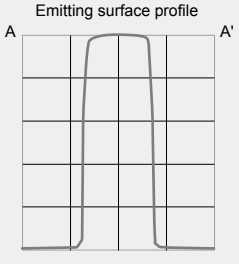
Please contact your CCS sales representative.

E.g.: Slit specifications (Install a slit plate on the emitting surface)

Result: Uses the edge of the emitting surface, effective for inspections for dents and fish eyes where the change in the surface shape is slight.







* Conceptual image

Sharpens the line between light and dark for the Light Unit, allowing for inspection using the emitting surface's edge.

LND2 series

Refer to our website for product details.

CCS LND2 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Connector	Recommended Control Units	Weight
LND2-100SW	White	24 V / 5.8 W	5,500 K	SM Connector	PD3* / POD*1	140 g
LND2-200SW		24 V / 12 W				170 g
LND2-300SW		24 V / 18 W				200 g
LND2-400SW		24 V / 24 W				250 g
LND2-500SW		24 V / 29 W				300 g
LND2-600SW		24 V / 35 W				360 g
LND2-700SW		24 V / 41 W		EL Connector	PD3-10024-8* / PSB3-30024	405 g
LND2-800SW		24 V / 47 W				455 g
LND2-900SW		24 V / 53 W				505 g
LND2-1000SW		24 V / 58 W				560 g
LND2-1100SW		24 V / 64 W				615 g
LND2-1200SW		24 V / 70 W				670 g
LND2-100RD	Red	24 V / 7.6 W	630 nm	SM Connector	PD3* / POD*1	140 g
LND2-200RD		24 V / 16 W				170 g
LND2-300RD		24 V / 23 W				200 g
LND2-400RD		24 V / 31 W				250 g
LND2-500RD		24 V / 38 W				300 g
LND2-600RD		24 V / 46 W				360 g
LND2-700RD		24 V / 53 W		EL Connector	PD3-10024-8* / PSB3-30024	405 g
LND2-800RD		24 V / 61 W				455 g
LND2-900RD		24 V / 69 W				505 g
LND2-1000RD		24 V / 76 W				560 g
LND2-1100RD		24 V / 84 W				615 g
LND2-1200RD		24 V / 91 W				670 g

* Custom products with a PWM frequency of 500 kHz are available for Digital Control Unit PD3 series. Please contact your CCS sales representative for details.

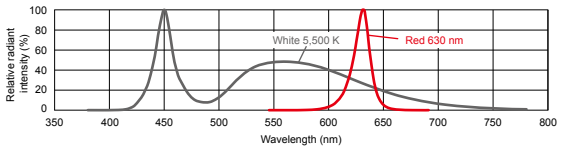
Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*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

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (blue/green/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

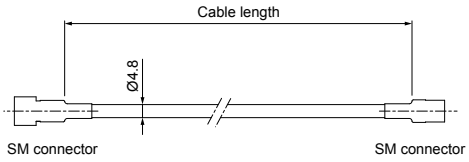
Extension cables

SM connector type

Model name	Cable length
FCB-1	1 m
FCB-2	2 m
FCB-3	3 m
FCB-5	5 m

Extension Cables Page ▶ P.230

(mm)



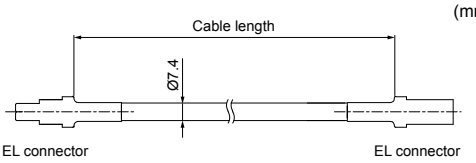
Cable permitted bending radius: 28.8 mm

EL connector type

Model name	Cable length
FCB-1-EL2	1 m
FCB-2-EL2	2 m
FCB-3-EL2	3 m
FCB-5-EL2	5 m
FCB-10-EL2	10 m
FCB-15-EL2	15 m

Extension Cables Page ▶ P.230

(mm)

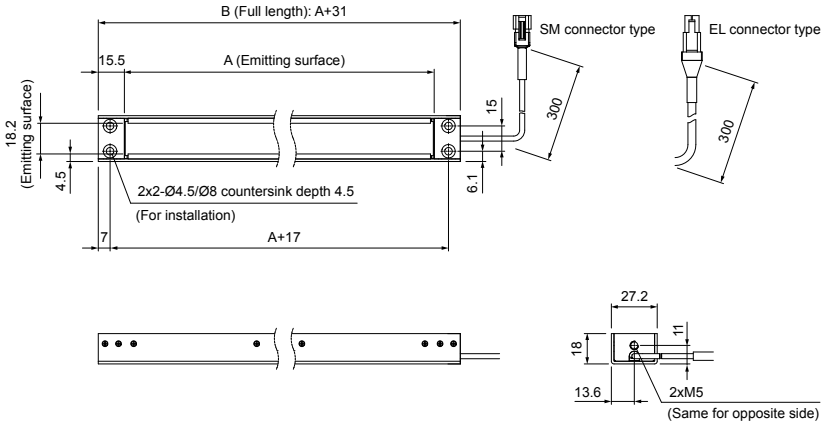


Cable permitted bending radius: 29.6 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)

	Model name
SM connector type	LND2-100
	LND2-200
	LND2-300
	LND2-400
	LND2-500
	LND2-600
EL connector type	LND2-700
	LND2-800
	LND2-900
	LND2-1000
	LND2-1100
	LND2-1200



	Model name	A (Emitting surface)	B (Full length)		Model name	A (Emitting surface)	B (Full length)
White	LND2-100SW	101	132	Red	LND2-100RD	101	132
	LND2-200SW	201	232		LND2-200RD	201	232
	LND2-300SW	301	332		LND2-300RD	301	332
	LND2-400SW	401	432		LND2-400RD	401	432
	LND2-500SW	503	534		LND2-500RD	503	534
	LND2-600SW	603	634		LND2-600RD	603	634
	LND2-700SW	703	734		LND2-700RD	703	734
	LND2-800SW	803	834		LND2-800RD	803	834
	LND2-900SW	903	934		LND2-900RD	903	934
	LND2-1000SW	1,003	1,034		LND2-1000RD	1,003	1,034
	LND2-1100SW	1,103	1,134		LND2-1100RD	1,103	1,134
	LND2-1200SW	1,203	1,234		LND2-1200RD	1,203	1,234

You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

Line Lights
HLND series

Refer to our website for product details.
CCS HLND ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light from an emitting surface equipped with LEDs in a straight line

LED color
Custom orders accepted

Size
Custom orders accepted

Applications Mixed foreign materials inspection for rice, foreign material inspection for clear film, stain inspection for sheet steel, inspection for surface printing on paper, and dimension measuring for sheet steel, etc.

Can create up to a maximum of 2,700 mm

Provides a Light Unit with the optimal length to meet your needs.

Emitting surface length

From 100 mm to 2,700 mm | Can be made in units of 100 mm

LED color

For emitted LED color, we have a lineup consisting of:

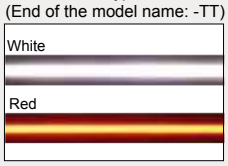
Red and White

Select your Light Unit based on the details of your inspections.

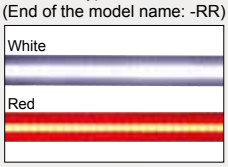
Two types, with different diffusion plate transmittance rate, are available

You can select from a uniform type perfect as transmission lighting, and a high output type perfect as reflection lighting.

Transmission type
(End of the model name: -TT)



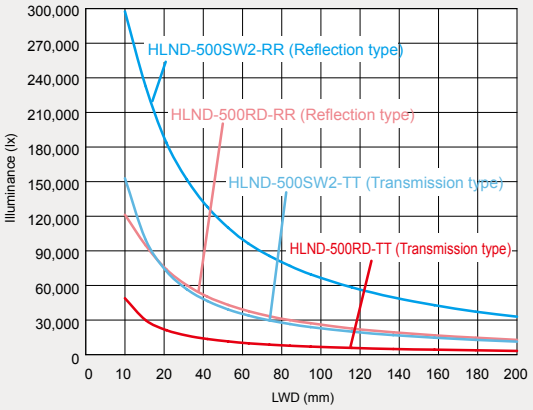
Reflection type
(End of the model name: -RR)



Uses a unique illumination mechanism

We used surface-mounted LEDs and a unique illumination mechanism to achieve a high output Line Light. Two types of diffusion plates to be equipped are available. Select one to match your needs.

Illumination comparison for the HLND series



* Actual measurement values at 100% intensity in each illuminating distance. Results for individual products may vary.
* LWD is the distance from the Light Unit to the workpiece.

* The graph included is for reference only. Actual values may vary.

Applications

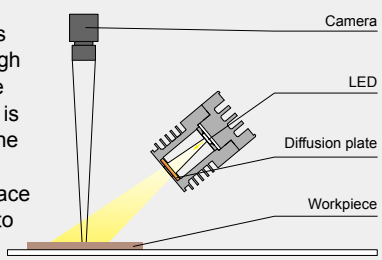
Foreign material inspection for clear film (Transmission type)

Visual inspection for color sheet steel (Reflection type)

Example configuration

LEDs are mounted on a flat circuit board. The light is transmitted through the diffusion plate and diffused light is illuminated in a line shape.
The emitting surface can be made up to 2,700 mm long.

HLND series



We have various materials.
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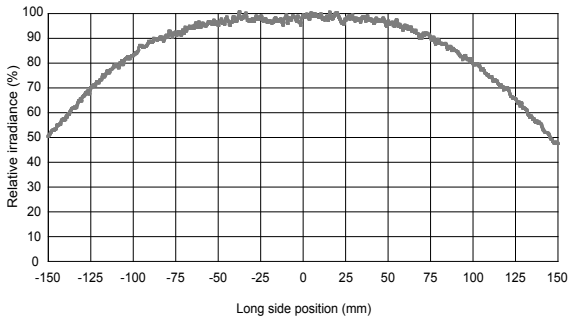
Download here.
http://www.ccs-grp.com/dl/

Data (Representative example)

*The graph included is for reference only. Actual values may vary.

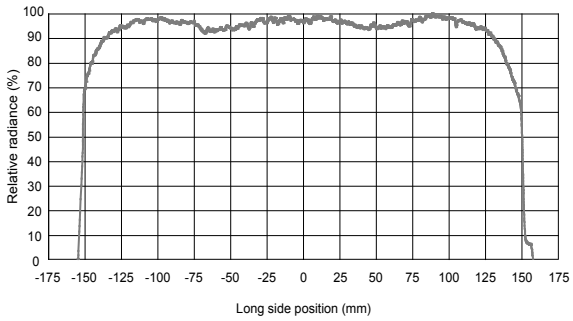
HLND-300SW2-TT (Transmission type)

Relative irradiance distribution



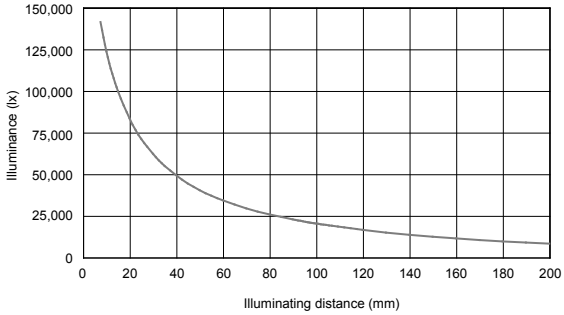
* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

Relative radiance distribution



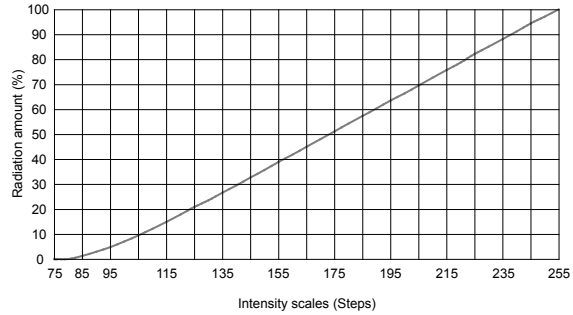
* The graph included is for reference only. Actual values may vary.

Change in illuminance



* Actual measurement values at 100% intensity in each illuminating distance.
Results for individual products may vary.

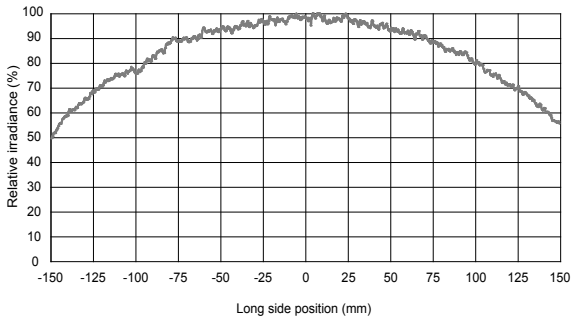
Output characteristics



* Actual measurement values using the Analog Control Unit PSB3-30024.
Results for individual products may vary.
* Data obtained when output voltage range is 12 to 24 V.

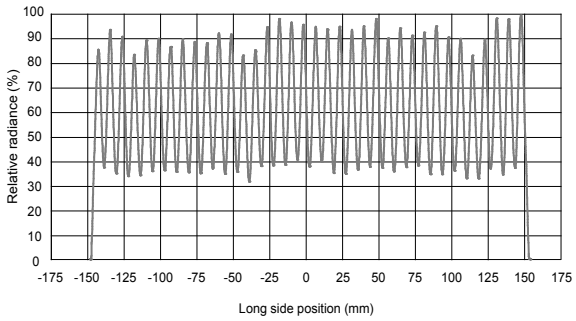
HLND-300SW2-RR (Reflection type)

Relative irradiance distribution



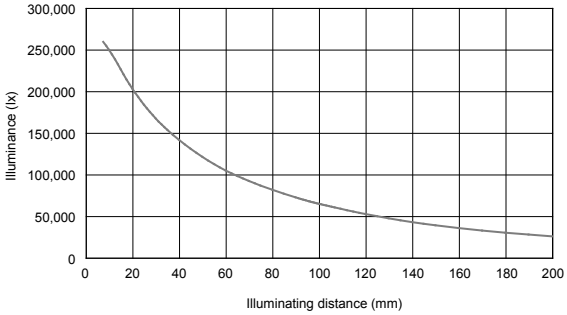
* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

Relative radiance distribution



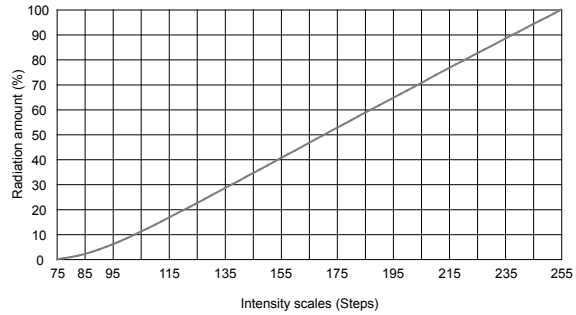
* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

Change in illuminance



* Actual measurement values at 100% intensity in each illuminating distance.
Results for individual products may vary.

Output characteristics



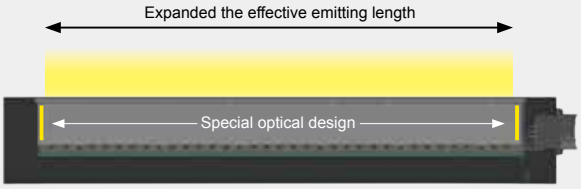
* Actual measurement values using the Analog Control Unit PSB3-30024.
Results for individual products may vary.
* Data obtained when output voltage range is 12 to 24 V.

HLND series

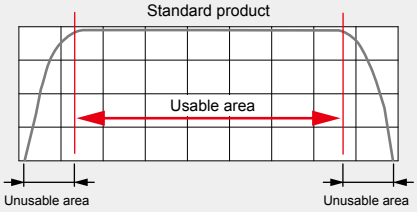
Refer to our website for product details.
CCS HLND ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Custom order

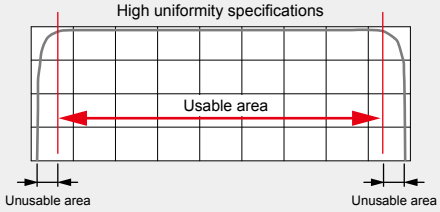
Please contact your CCS sales representative.
E.g.: Usable area expansion (Special optical design on both sides of the housing)
Result: Keeps weakening on both sides of the Light Unit housing to a minimum, expanding the effective emitting length.



● Image of wave length capturing with a line sensor



Light is weakened at both ends, and the effective emitting length for the camera is short.



Weakening at both ends can be reduced, expanding the effective emitting length with respective to the Light Unit emitting length.

Lineup

	Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Extension cables	Recommended Control Unit	Weight
Transmission type	HLND-100SW2-TT	White	10 W	6,500 K	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	520 g
	HLND-200SW2-TT		20 W				840 g
	HLND-300SW2-TT		30 W				1,160 g
	HLND-400SW2-TT		40 W				1,480 g
	HLND-500SW2-TT		50 W				1,800 g
	HLND-600SW2-TT		60 W				2,120 g
	HLND-700SW2-TT		71 W				2,440 g
	HLND-800SW2-TT		81 W				2,760 g
	HLND-900SW2-TT		91 W				3,080 g
	HLND-1000SW2-TT		89 W				3,400 g
	HLND-1100SW2-TT		98 W				3,720 g
	HLND-1200SW2-TT		107 W				4,040 g
	HLND-1300SW2-TT		115 W				4,360 g
	HLND-1400SW2-TT		124 W				4,680 g
	HLND-1500SW2-TT		133 W				5,000 g
	HLND-1600SW2-TT		142 W				5,320 g
	HLND-1700SW2-TT		151 W				5,640 g
	HLND-1800SW2-TT		160 W				5,960 g
	HLND-1900SW2-TT		169 W				6,280 g
	HLND-2000SW2-TT		178 W				6,600 g
	HLND-2100SW2-TT		186 W				6,920 g
	HLND-2200SW2-TT		195 W				7,240 g
	HLND-2300SW2-TT		204 W				7,560 g
	HLND-2400SW2-TT		213 W				7,880 g
	HLND-2500SW2-TT		222 W				8,200 g
	HLND-2600SW2-TT		231 W				8,520 g
	HLND-2700SW2-TT		240 W				8,840 g

PSB3-30024 Product Page ▶ P.221

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (blue/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Lineup

	Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Extension cables	Recommended Control Unit	Weight
Transmission type	HLND-100RD-TT	Red	4.8 W	624 nm	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	520 g
	HLND-200RD-TT		9.6 W				840 g
	HLND-300RD-TT		14 W				1,160 g
	HLND-400RD-TT		19 W				1,480 g
	HLND-500RD-TT		24 W				1,800 g
	HLND-600RD-TT		29 W				2,120 g
	HLND-700RD-TT		34 W				2,440 g
	HLND-800RD-TT		38 W				2,760 g
	HLND-900RD-TT		43 W				3,080 g
	HLND-1000RD-TT		48 W				3,400 g
	HLND-1100RD-TT		53 W				3,720 g
	HLND-1200RD-TT		58 W				4,040 g
	HLND-1300RD-TT		62 W				4,360 g
	HLND-1400RD-TT		67 W				4,680 g
	HLND-1500RD-TT		72 W				5,000 g
	HLND-1600RD-TT		77 W				5,320 g
	HLND-1700RD-TT		82 W				5,640 g
	HLND-1800RD-TT		86 W				5,960 g
	HLND-1900RD-TT		91 W				6,280 g
	HLND-2000RD-TT		96 W				6,600 g
	HLND-2100RD-TT		101 W				6,920 g
	HLND-2200RD-TT		106 W				7,240 g
	HLND-2300RD-TT		110 W				7,560 g
	HLND-2400RD-TT		115 W				7,880 g
	HLND-2500RD-TT		120 W				8,200 g
	HLND-2600RD-TT		125 W				8,520 g
	HLND-2700RD-TT		130 W				8,840 g
Reflection type	HLND-100SW2-RR	White	10 W	6,500 K	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	520 g
	HLND-200SW2-RR		20 W				840 g
	HLND-300SW2-RR		30 W				1,160 g
	HLND-400SW2-RR		40 W				1,480 g
	HLND-500SW2-RR		50 W				1,800 g
	HLND-600SW2-RR		60 W				2,120 g
	HLND-700SW2-RR		71 W				2,440 g
	HLND-800SW2-RR		81 W				2,760 g
	HLND-900SW2-RR		91 W				3,080 g
	HLND-1000SW2-RR		89 W				3,400 g
	HLND-1100SW2-RR		98 W				3,720 g
	HLND-1200SW2-RR		107 W				4,040 g
	HLND-1300SW2-RR		115 W				4,360 g
	HLND-1400SW2-RR		124 W				4,680 g
	HLND-1500SW2-RR		133 W				5,000 g
	HLND-1600SW2-RR		142 W				5,320 g
	HLND-1700SW2-RR		151 W				5,640 g
	HLND-1800SW2-RR		160 W				5,960 g
	HLND-1900SW2-RR		169 W				6,280 g
	HLND-2000SW2-RR		178 W				6,600 g
	HLND-2100SW2-RR		186 W				6,920 g
	HLND-2200SW2-RR		195 W				7,240 g
	HLND-2300SW2-RR		204 W				7,560 g
	HLND-2400SW2-RR		213 W				7,880 g
	HLND-2500SW2-RR		222 W				8,200 g
	HLND-2600SW2-RR		231 W				8,520 g
	HLND-2700SW2-RR		240 W				8,840 g

PSB3-30024 Product Page ▶ P.221

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (blue/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

HLND series

Refer to our website for product details.
CCS HLND ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Lineup

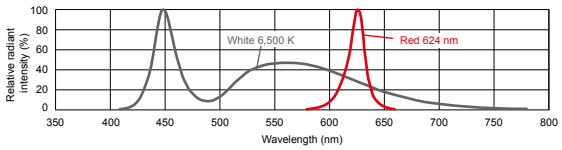
	Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Extension cables	Recommended Control Unit	Weight
Reflection type	HLND-100RD-RR	Red	4.8 W	624 nm	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	520 g
	HLND-200RD-RR		9.6 W				840 g
	HLND-300RD-RR		14 W				1,160 g
	HLND-400RD-RR		19 W				1,480 g
	HLND-500RD-RR		24 W				1,800 g
	HLND-600RD-RR		29 W				2,120 g
	HLND-700RD-RR		34 W				2,440 g
	HLND-800RD-RR		38 W				2,760 g
	HLND-900RD-RR		43 W				3,080 g
	HLND-1000RD-RR		48 W				3,400 g
	HLND-1100RD-RR		53 W				3,720 g
	HLND-1200RD-RR		58 W				4,040 g
	HLND-1300RD-RR		62 W				4,360 g
	HLND-1400RD-RR		67 W				4,680 g
	HLND-1500RD-RR		72 W				5,000 g
	HLND-1600RD-RR		77 W				5,320 g
	HLND-1700RD-RR		82 W				5,640 g
	HLND-1800RD-RR		86 W				5,960 g
	HLND-1900RD-RR		91 W				6,280 g
	HLND-2000RD-RR		96 W				6,600 g
	HLND-2100RD-RR		101 W				6,920 g
	HLND-2200RD-RR		106 W				7,240 g
	HLND-2300RD-RR		110 W				7,560 g
	HLND-2400RD-RR		115 W				7,880 g
	HLND-2500RD-RR		120 W				8,200 g
	HLND-2600RD-RR		125 W				8,520 g
	HLND-2700RD-RR		130 W				8,840 g

PSB3-30024 Product Page ▶ P.221

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (blue/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

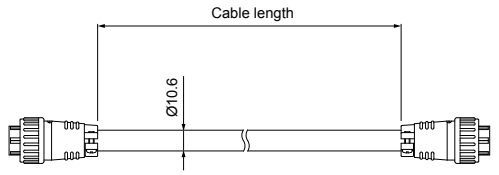
We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSB3-30024.

FCB-1.25SQ-ME7

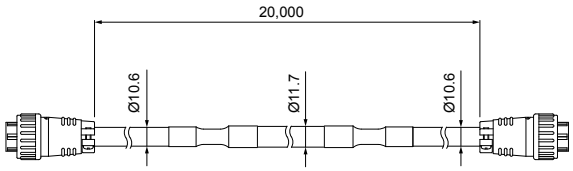
Model name	Cable length	Weight
FCB-2-1.25SQ-ME7	2 m	430 g
FCB-3-1.25SQ-ME7	3 m	580 g
FCB-5-1.25SQ-ME7	5 m	1,000 g
FCB-10-1.25SQ-ME7	10 m	2,000 g



Cable permitted bending radius: 63.6 mm

FCB-20-2.0SQ-ME7

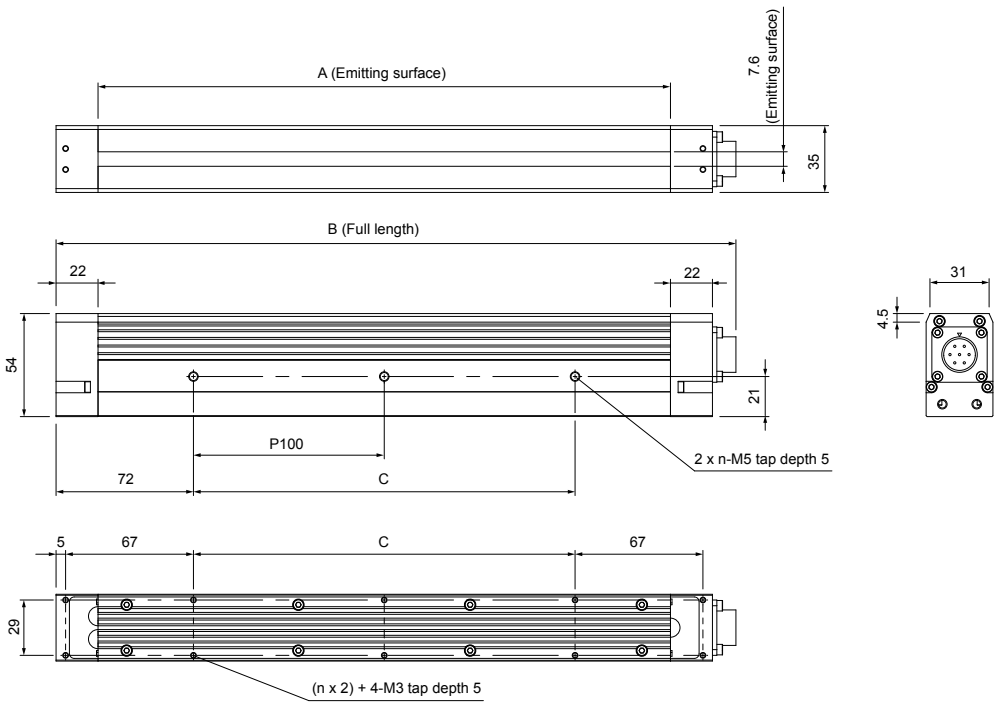
Model name	Cable length	Weight
FCB-20-2.0SQ-ME7	20 m	5,000 g



Cable permitted bending radius: 63.6 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)



	Model name (Common for all colors)	A (Emitting surface)	B (Full length)	C	n
Common for the transmission / reflection type	HLND-100SW/RD	100	156.3	-	1
	HLND-200SW/RD	200	256.3	100	2
	HLND-300SW/RD	300	356.3	200	3
	HLND-400SW/RD	400	456.3	300	4
	HLND-500SW/RD	500	556.3	400	5
	HLND-600SW/RD	600	656.3	500	6
	HLND-700SW/RD	700	756.3	600	7
	HLND-800SW/RD	800	856.3	700	8
	HLND-900SW/RD	900	956.3	800	9
	HLND-1000SW/RD	1,000	1,056.3	900	10
	HLND-1100SW/RD	1,100	1,156.3	1,000	11
	HLND-1200SW/RD	1,200	1,256.3	1,100	12
	HLND-1300SW/RD	1,300	1,356.3	1,200	13
	HLND-1400SW/RD	1,400	1,456.3	1,300	14

	Model name (Common for all colors)	A (Emitting surface)	B (Full length)	C	n
Common for the transmission / reflection type	HLND-1500SW/RD	1,500	1,556.3	1,400	15
	HLND-1600SW/RD	1,600	1,656.3	1,500	16
	HLND-1700SW/RD	1,700	1,756.3	1,600	17
	HLND-1800SW/RD	1,800	1,856.3	1,700	18
	HLND-1900SW/RD	1,900	1,956.3	1,800	19
	HLND-2000SW/RD	2,000	2,056.3	1,900	20
	HLND-2100SW/RD	2,100	2,156.3	2,000	21
	HLND-2200SW/RD	2,200	2,256.3	2,100	22
	HLND-2300SW/RD	2,300	2,356.3	2,200	23
	HLND-2400SW/RD	2,400	2,456.3	2,300	24
	HLND-2500SW/RD	2,500	2,556.3	2,400	25
	HLND-2600SW/RD	2,600	2,656.3	2,500	26
	HLND-2700SW/RD	2,700	2,756.3	2,600	27

Line Lights
LT series

Refer to our website for product details.
CCS LT ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light evenly using an original optical design

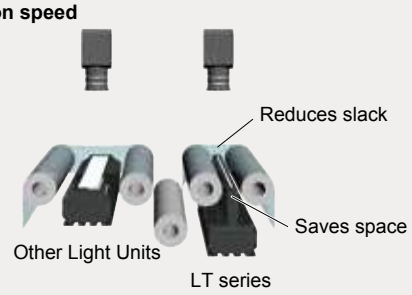
LED color
Custom orders accepted
Size
Custom orders accepted

LT-300SW

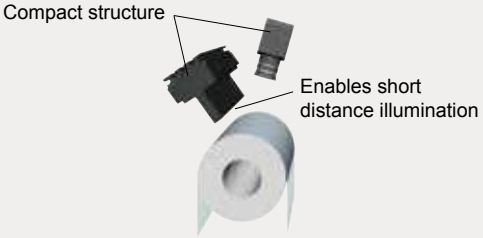
Applications Fish eye inspection on clear film, scratch inspection on film sheets, inspection for cracks/damage on wafers, visual inspection for metal foil sheets, and shrinkage inspection for resin, etc.

Provides optimal imaging with its unique illuminating mechanism

By reducing the space between rolls, you can improve inspection speed



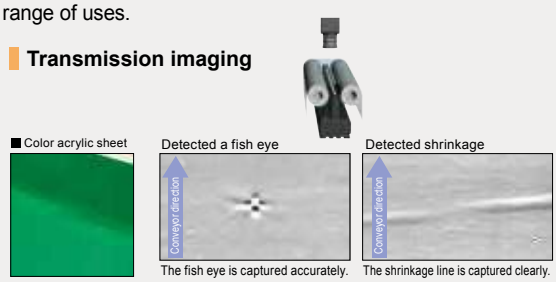
Allows for inspections where the light is installed at a narrow angle with the camera



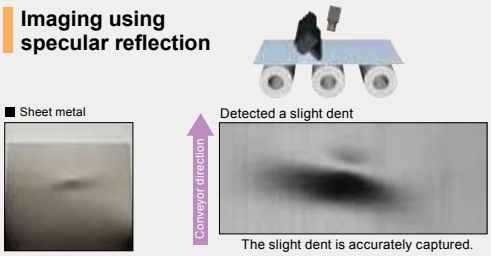
Achieves both high uniformity and high brightness

We achieved both high uniformity and high brightness through our unique optical system. It can perform highly-accurate inspections depending on the scan rate, and supports a wide range of uses.

Transmission imaging



Imaging using specular reflection



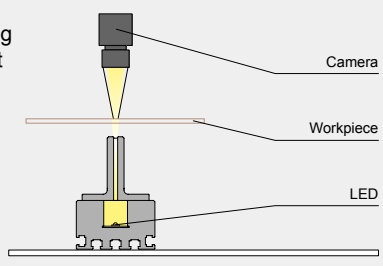
Applications

Inspection for fish eyes, scratches, and foreign materials on clear film

Example configuration

By employing a mechanism where the emitting surface sticks out from the main unit, it's possible to illuminate with the tip near the inspected item, even in a narrow space.

LT series



We have various materials.
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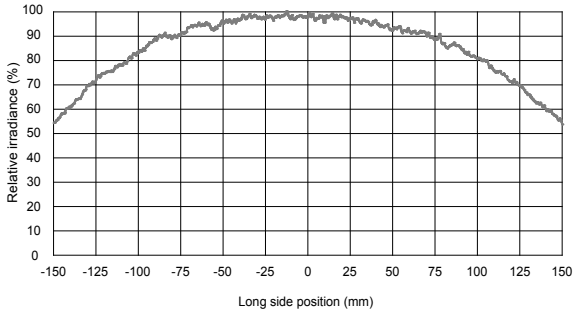
http://www.ccs-grp.com/dl/

Data (Representative example)

*The graph included is for reference only. Actual values may vary.

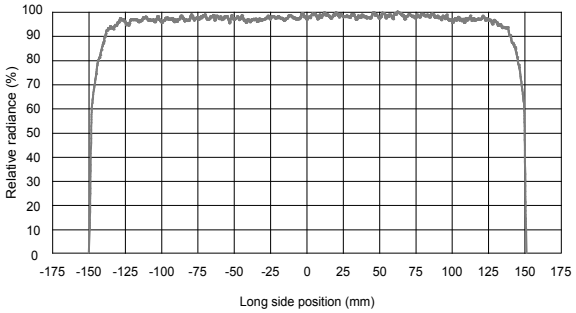
LT-300SW

Relative irradiance distribution



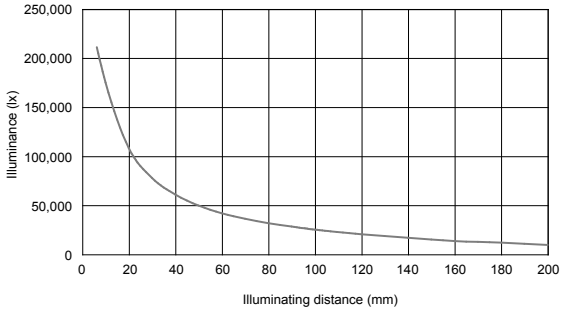
* Actual measurement values at 100% intensity in 100 mm illuminating distance.
Results for individual products may vary.

Relative radiance distribution



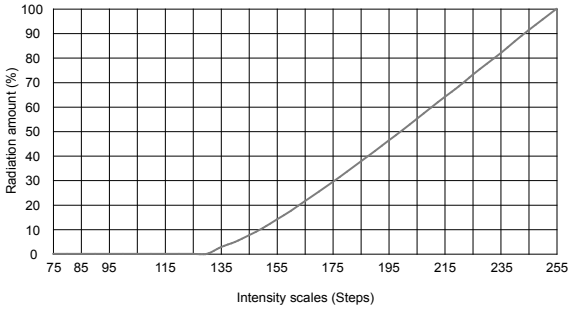
* The graph included is for reference only. Actual values may vary.

Change in illuminance



* Actual measurement values at 100% intensity in each illuminating distance.
Results for individual products may vary.

Output characteristics



* Actual measurement values using the Analog Control Unit PSB3-30024.
Results for individual products may vary.
* Data obtained when output voltage range is 12 to 24 V.

Custom order

Please contact your CCS sales representative.

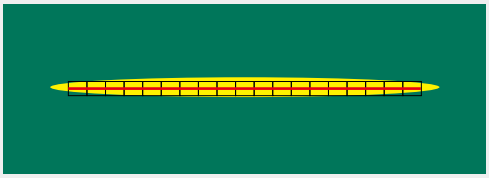
E.g.: Widened emitting surface (Changed the standard product's 2.8 mm to 9.8 mm)

Result: Made it easier to align the line sensor camera axis and the illuminated range when using long Line Lights over 1,000 mm.

Standard product
(Emitting width of 2.8 mm)

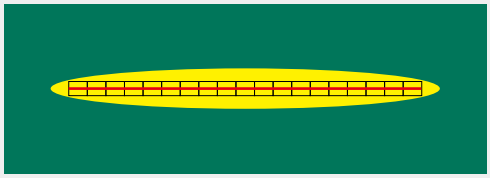
Wide type
(Emitting width of 9.8 mm)

● Position image of the camera axis and the illuminated range



Camera axis ——— Illuminated range ⬭

● Position image of the camera axis and the illuminated range



Camera axis ——— Illuminated range ⬭

LT series

Refer to our website for product details.

CCS LT ▶ Search

Use a search engine.

You can also us
your smartphor
or cell phone.

Lineup

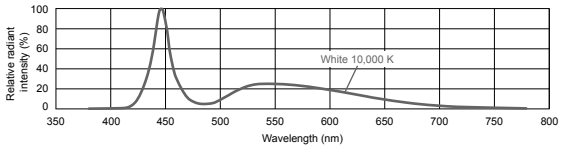
Model name	LED color	Power consumption	Correlated color temperature	Extension cables	Recommended Control Unit	Weight
LT-100SW	White	15 W	10,000 K	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	500 g
LT-200SW		29 W				1,000 g
LT-300SW		43 W				1,500 g
LT-400SW		57 W				2,000 g
LT-500SW		71 W				2,500 g
LT-600SW		85 W				3,000 g
LT-700SW		99 W				3,500 g
LT-800SW		113 W				4,000 g
LT-900SW		128 W				4,500 g
LT-1000SW		142 W				5,000 g
LT-1100SW		156 W				5,500 g
LT-1200SW		170 W				6,000 g
LT-1300SW		184 W				6,500 g
LT-1400SW		198 W				7,000 g
LT-1500SW		212 W				7,500 g
LT-1600SW		226 W				8,000 g
LT-1700SW		240 W				8,500 g
LT-1800SW		255 W				9,000 g

PSB3-30024 Product Page ▶ P.221

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (red/blue/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

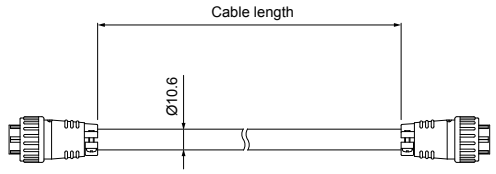
Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSB3-30024.

FCB-1.25SQ-ME7

Model name	Cable length	Weight
FCB-2-1.25SQ-ME7	2 m	430 g
FCB-3-1.25SQ-ME7	3 m	580 g
FCB-5-1.25SQ-ME7	5 m	1,000 g
FCB-10-1.25SQ-ME7	10 m	2,000 g

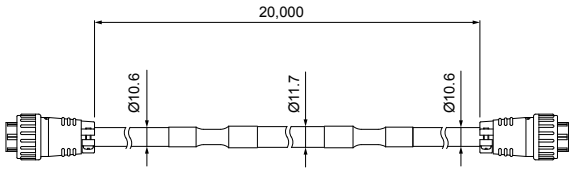
(mm)



Cable permitted bending radius: 63.6 mm

FCB-20-2.0SQ-ME7

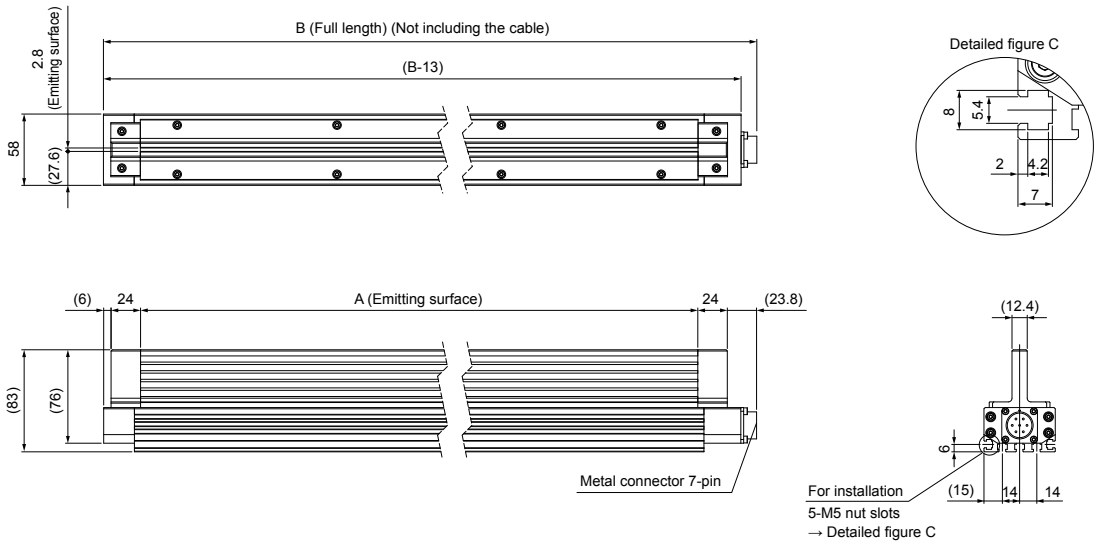
Model name	Cable length	Weight
FCB-20-2.0SQ-ME7	20 m	5,000 g



Cable permitted bending radius: 63.6 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)



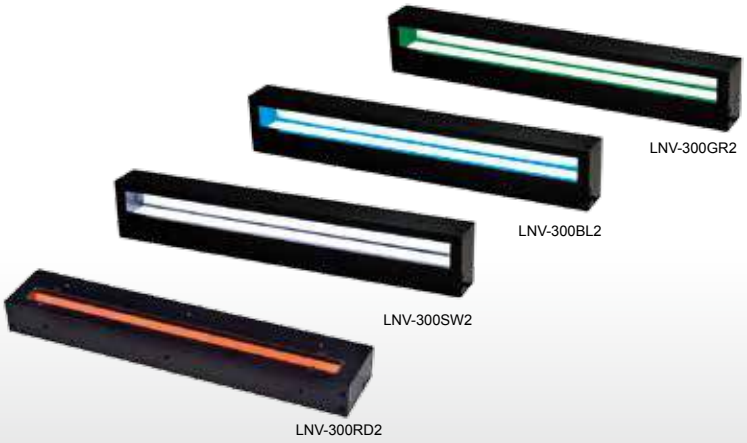
Model name	A (Emitting surface)	B (Full length)	Model name	A (Emitting surface)	B (Full length)
LT-100SW	100	178	LT-1000SW	1,000	1,078
LT-200SW	200	278	LT-1100SW	1,100	1,178
LT-300SW	300	378	LT-1200SW	1,200	1,278
LT-400SW	400	478	LT-1300SW	1,300	1,378
LT-500SW	500	578	LT-1400SW	1,400	1,478
LT-600SW	600	678	LT-1500SW	1,500	1,578
LT-700SW	700	778	LT-1600SW	1,600	1,678
LT-800SW	800	878	LT-1700SW	1,700	1,778
LT-900SW	900	978	LT-1800SW	1,800	1,878

Line Coaxial Lights
LNV series

Refer to our website for product details.
CCS LNV ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Provides diffused light from the same axis as the camera

LED color
Custom orders accepted
Size
Custom orders accepted

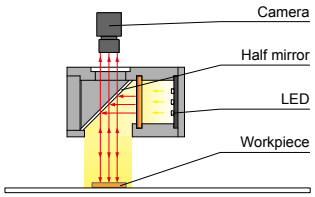


Applications Inspection for gaps between electronic parts on circuit boards, inspection for faults in lead frames, and inspection for stains attached to sheet metal, etc.

Characteristics

Line coaxial illumination.
Allows for imaging with a line sensor camera.

Example configuration (LNV-300 series)



Applications

Inspection for dents on a metal bar

We accept custom orders.
Please feel free to inquire.

- Change to format
- Increase brightness
- Change to wavelength, etc.

Lineup

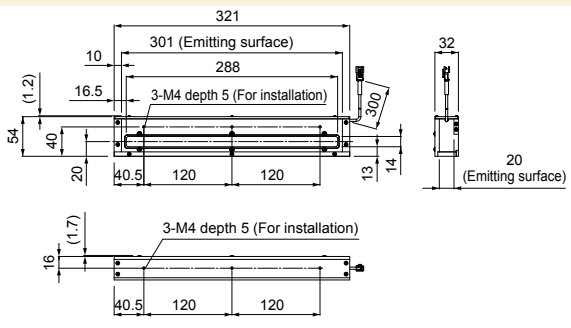
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Recommended Control Units	Weight
LNV-300RD2	Red	24 V / 19 W	630 nm	–	PD3*1 / CC-ST-1024* / PSB / POD*2 *Can only use green.	550 g
LNV-300SW2	White	24 V / 13 W	5,500 K			
LNV-300BL2	Blue	24 V / 13 W	470 nm			
LNV-300GR2	Green	24 V / 9.9 W	525 nm			

LED Properties: Light Spectrum ▶ P.242 | Extension Cables ▶ P.230 | Control Unit Selection Guide ▶ P.185 | List of Control Unit Specifications ▶ P.187

*1: Custom products with a PWM frequency of 500 kHz are available for Digital Control Unit PD3 series. Please contact your CCS sales representative for details.
*2: 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

Dimensions (mm)

LNV-300RD2/SW2/BL2/GR2

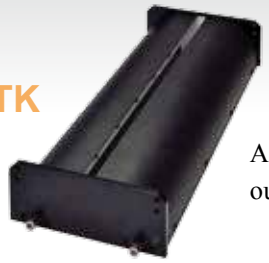


You can change the connectors of the LightUnit cable. Choose between M12 connectors and flying leads. Refer to P.123 for details.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Examples of Custom Ordered Products
Line High Power Dome Light

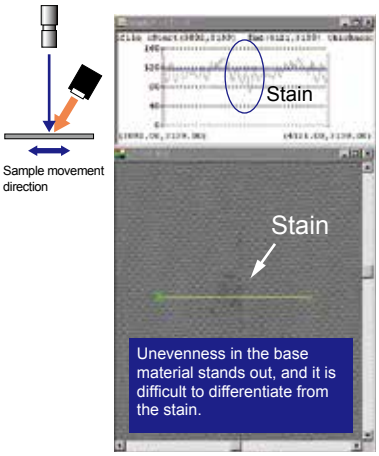
HLDN-600BLTN55ARELTK



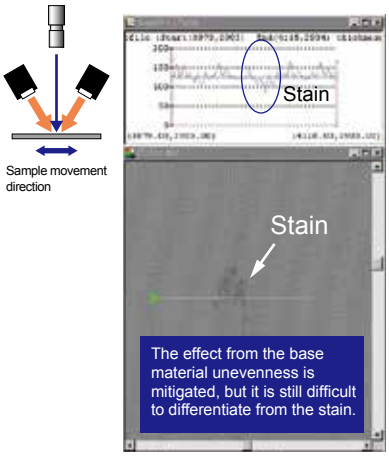
Adding an air joint made it possible to increase output using compressed air cooling.

Example 1 : Detecting stains on fibers

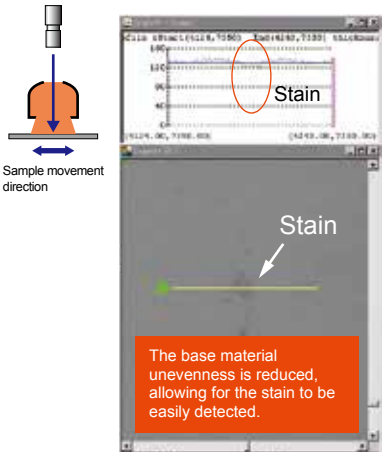
■ Diffused reflection on one side



■ Diffused reflection on both sides

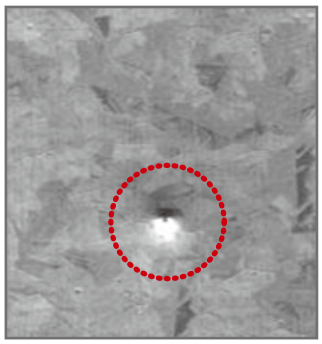


■ Line High Power Dome Light



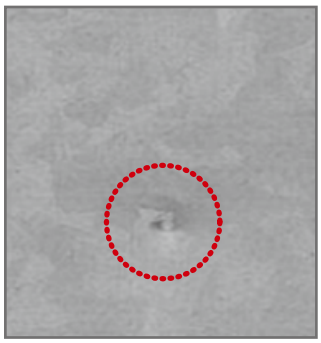
Example 2 : Exterior imaging of galvanized sheet steel

■ Line Sensor Light



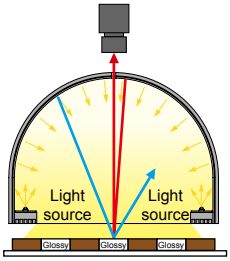
It's difficult to differentiate between minute faults and surface differences.

■ Line High Power Dome Light

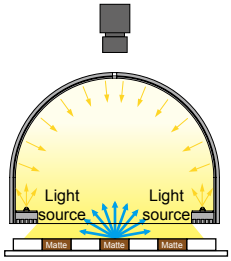


The diffused light from the Dome Light negates differences in surface tone, making it possible to notice faults.

Working of exterior imaging of galvanized sheet steel using a Line High Power Dome Light



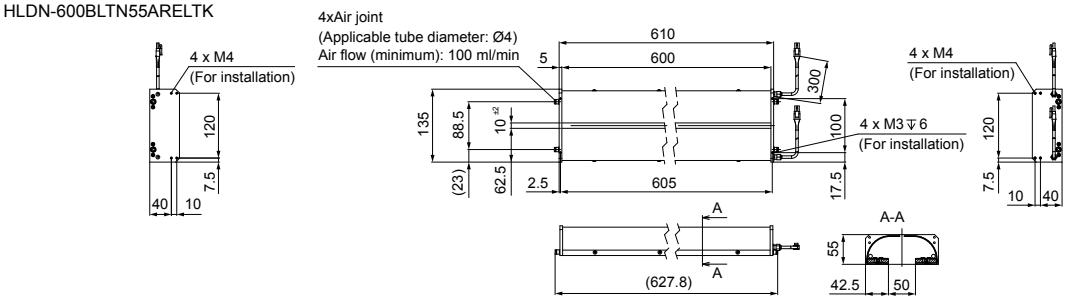
Only the light illuminated from near the roof of the reflective panel is reflected by the glossy section of the inspected item at nearly a specular reflection and is seen by the camera.



The matte section has a lower reflection rate compared to the glossy section, but light illuminated from the whole reflective panel is diffused and is seen by the camera.

Dimensions (mm)

HLDN-600BLTN55ARELTK



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Line Lights
LNDG series

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Achieves angled illumination using an original optical design
Bumps and subtle vertical wrinkles can be detected

LED color
Custom orders accepted

Size
Custom orders accepted

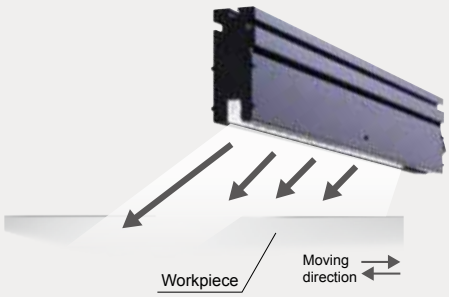
LNDG-500SW-LA

Applications Inspection for vertical wrinkles in paper, vertical striations in cardboard, vertical wrinkles and folding in non-woven fabric, and wrinkles in bonded sheets, etc

Achieves angled illumination

The LNDG series enables detection of bumps and subtle vertical wrinkles, which were difficult to detect with conventional line sensor lights, in paper or non-woven fabric that disperses light.

Conceptual image of angled illumination



Other characteristics

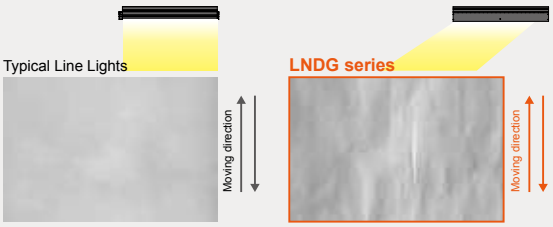
1) Fan-less (Natural air cooling)
2) Error detection support
3) Emitting surface 300 to 3,000 mm long (can be made in units of 100 mm)

* Error detection is a function included with the PSCC(A) series, the recommended Control Units.

Bumps and subtle vertical wrinkles can be detected

Imaging samples

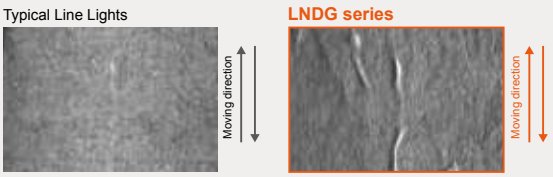
Inspections for vertical wrinkles in paper labels



Vertical wrinkles and bumps cannot be detected.

Vertical wrinkles and bumps and are clearly visible.

Inspecting non-woven fabric for defects

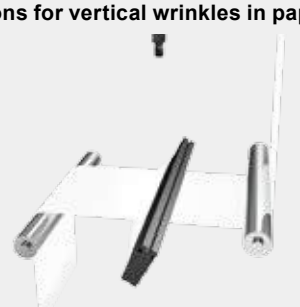


Fiber fraying and kinks cannot be detected.

Fiber fraying and kinks are clearly visible.

Applications

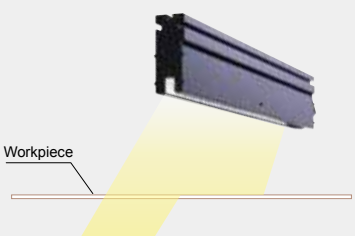
Inspections for vertical wrinkles in paper labels



Example configuration

Achieves angled illumination using an original optical design. This is a line sensor light perfect for detecting moving-direction bumps and subtle vertical wrinkles.

LNDG series



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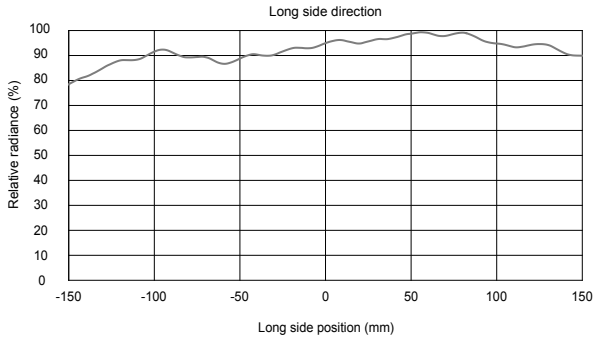
Data (Representative example)

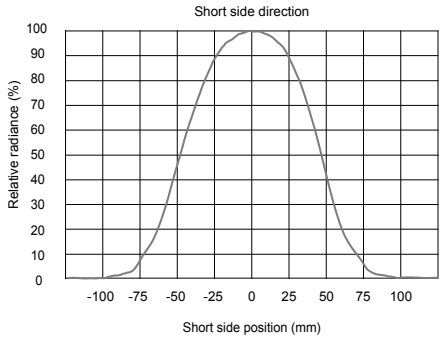
*The graph included is for reference only. Actual values may vary.

LNDG-500SW-LA

Relative radiance distribution

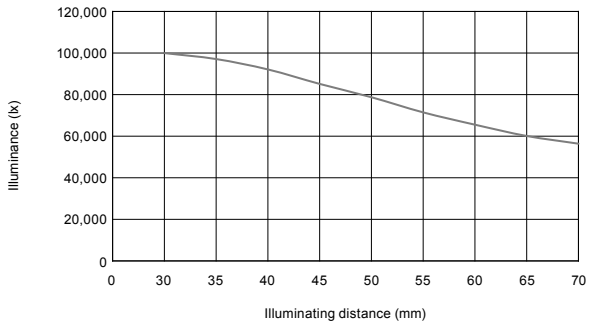


* Actual measurement values at 100% intensity. Results for individual products may vary.



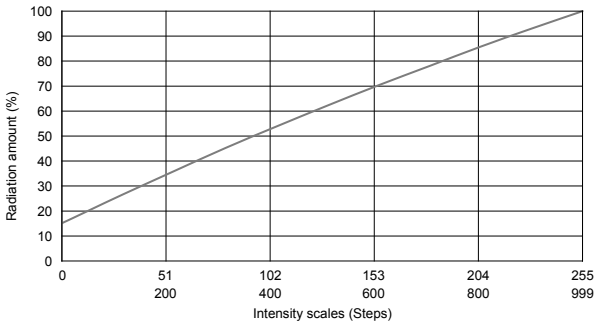
* The graph included is for reference only. Actual values may vary.

Change in illuminance



* Actual measurement values at 100% intensity, in the center part of emission in each illuminating distance.
Results for individual products may vary.

Graph of the correlation between intensity and output



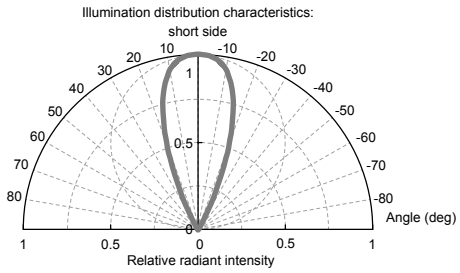
* Actual measurement values using the Analog Control Unit PSCC-30048(A).
Results for individual products may vary.

Characteristic of the illumination distribution

Measuring direction: long side

Measuring direction: short side

Illumination distribution characteristics:

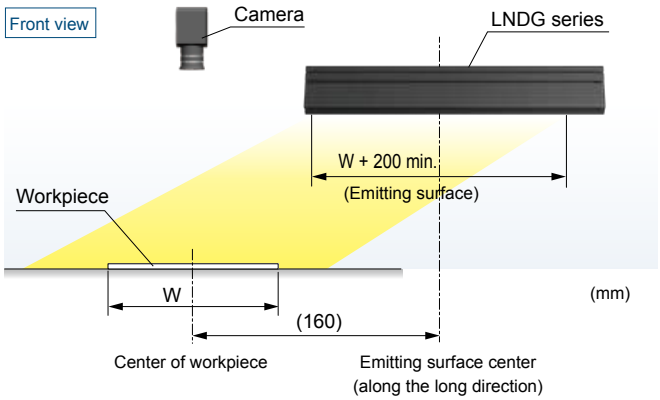


* These graphs are for reference only. Actual values may vary.

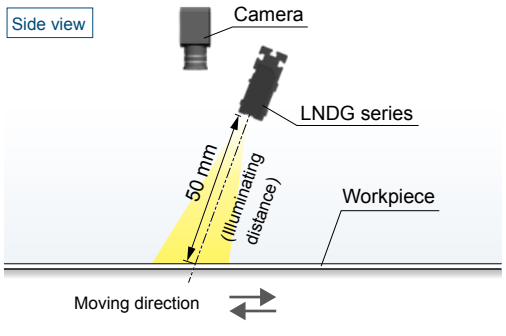
Select a Light Unit that is longer than the width of the workpiece.

The LNDG-series Light Unit emits light at an angle to enable detecting "vertical wrinkles and bumps." When you select a Light Unit, select one that is at least 200 mm longer than the width of the workpiece to be inspected. We recommend a illuminating distance of 50 mm to obtain sufficient illumination.

Front view



Side view



* The above illustration is an example of typical installation.
Consider the application environment for actual applications.

LNDG series

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Use a search engine.
You can also use your smartphone or cell phone.

Lineup

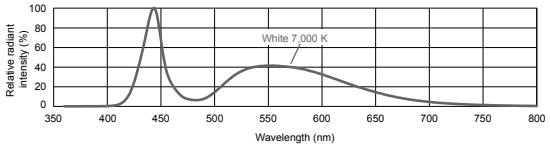
Model name	LED color	Power consumption	Correlated color temperature	Extension cables	Recommended Control Units	Weight
LNDG-300SW-LA	White	39 W	7,000 K			1,600 g
LNDG-400SW-LA		52 W				2,000 g
LNDG-500SW-LA		65 W				2,400 g
LNDG-600SW-LA		78 W				2,800 g
LNDG-700SW-LA		91 W				3,200 g
LNDG-800SW-LA		104 W				3,600 g
LNDG-900SW-LA		117 W				4,000 g
LNDG-1000SW-LA		130 W		QCBM	PSCC-30048(A)	4,400 g
LNDG-1100SW-LA		143 W		QCB	PSCC-60048(A)	4,800 g
LNDG-1200SW-LA		156 W				5,200 g
LNDG-1300SW-LA		169 W				5,500 g
LNDG-1400SW-LA		182 W				5,900 g
LNDG-1500SW-LA		195 W				6,300 g
LNDG-1600SW-LA		208 W				6,700 g
LNDG-1700SW-LA		221 W				7,100 g
LNDG-1800SW-LA		234 W				7,500 g
LNDG-1900SW-LA		247 W				7,900 g
LNDG-2000SW-LA		260 W				8,300 g
LNDG-2100SW-LA		273 W				8,700 g
LNDG-2200SW-LA		286 W				9,100 g
LNDG-2300SW-LA		299 W				9,500 g
LNDG-2400SW-LA		312 W				9,900 g
LNDG-2500SW-LA		325 W		QCB	PSCC-60048(A)	10,300 g
LNDG-2600SW-LA		338 W				10,700 g
LNDG-2700SW-LA		351 W				11,100 g
LNDG-2800SW-LA		364 W				11,500 g
LNDG-2900SW-LA		377 W				11,900 g
LNDG-3000SW-LA		390 W				12,300 g

PSCC(A) Series Product Page ▶ P.219

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (red/blue/IR, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the “Instruction Guide” included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

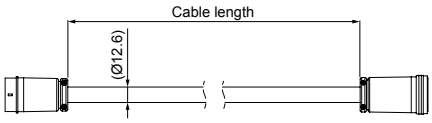
Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSCC(A) Series.

(mm)

QCBM

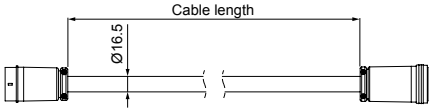
Model name	Cable length	Weight	Applicable Control Unit
QCBM-2	2 m	800 g	PSCC-30048(A)
QCBM-3	3 m	1,000 g	
QCBM-5	5 m	1,500 g	
QCBM-10	10 m	2,700 g	
QCBM-20	20 m	5,000 g	



Cable permitted bending radius: 75.6 mm

QCB

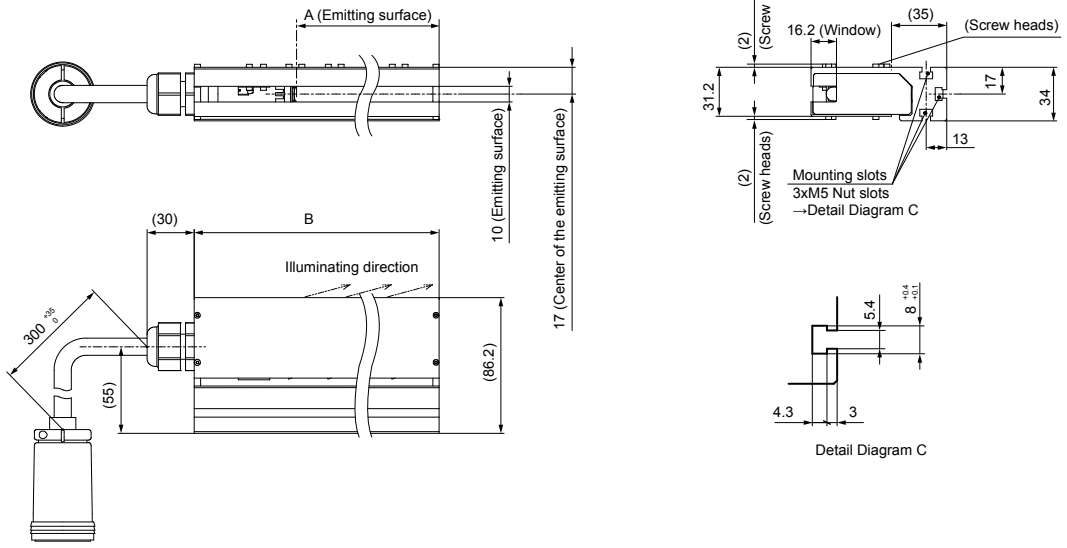
Model name	Cable length	Weight	Applicable Control Unit
QCB-2	2 m	1,100 g	PSCC-60048(A)
QCB-3	3 m	1,500 g	
QCB-5	5 m	2,400 g	
QCB-10	10 m	4,600 g	
QCB-20	20 m	8,900 g	



Cable permitted bending radius: 99 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)



Model name	A (Emitting surface)	B (Full length)	Model name	A (Emitting surface)	B (Full length)
LNDG-300SW-LA	300	365	LNDG-1700SW-LA	1,700	1,765
LNDG-400SW-LA	400	465	LNDG-1800SW-LA	1,800	1,865
LNDG-500SW-LA	500	565	LNDG-1900SW-LA	1,900	1,965
LNDG-600SW-LA	600	665	LNDG-2000SW-LA	2,000	2,065
LNDG-700SW-LA	700	765	LNDG-2100SW-LA	2,100	2,165
LNDG-800SW-LA	800	865	LNDG-2200SW-LA	2,200	2,265
LNDG-900SW-LA	900	965	LNDG-2300SW-LA	2,300	2,365
LNDG-1000SW-LA	1,000	1,065	LNDG-2400SW-LA	2,400	2,465
LNDG-1100SW-LA	1,100	1,165	LNDG-2500SW-LA	2,500	2,565
LNDG-1200SW-LA	1,200	1,265	LNDG-2600SW-LA	2,600	2,665
LNDG-1300SW-LA	1,300	1,365	LNDG-2700SW-LA	2,700	2,765
LNDG-1400SW-LA	1,400	1,465	LNDG-2800SW-LA	2,800	2,865
LNDG-1500SW-LA	1,500	1,565	LNDG-2900SW-LA	2,900	2,965
LNDG-1600SW-LA	1,600	1,665	LNDG-3000SW-LA	3,000	3,065

Line Lights
LNIS series

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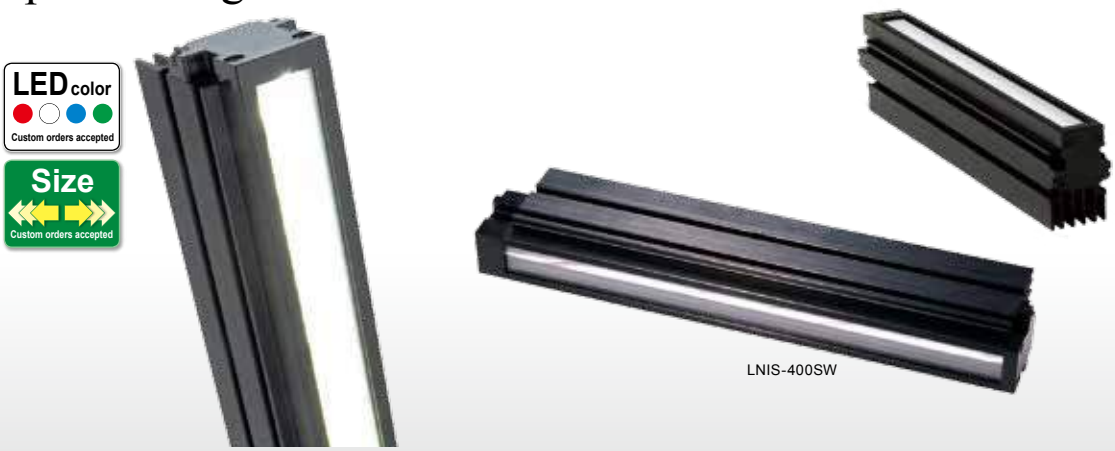
Achieves bi-directional angled illumination using an original optical design

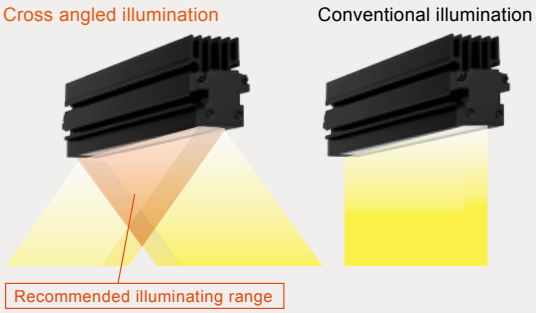


Applications Streak inspection for sheet surfaces, scratch inspection on clear film, scratch inspection on glass panels, and damage inspection for sheet metal, etc.

Achieves bi-directional angled illumination

The LNIS series is a completely new concept product that was developed to detect "moving-direction scratches," which were difficult to detect with conventional line sensor lights.

Difference between bi-directional angled illumination and conventional illumination

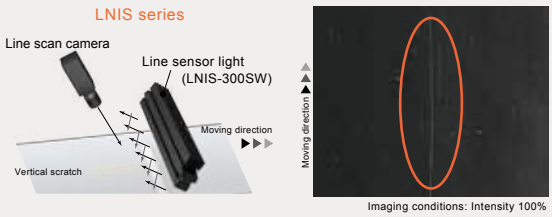


Other characteristics

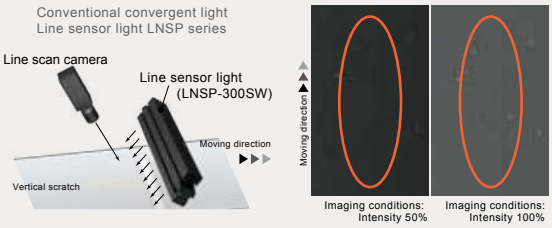
1) Fan-less (Natural air cooling)
2) Compact design
3) Emitting surface 100 to 1,000 mm long (can be made in units of 100 mm)

Perfect for moving-direction scratches such as streaks

Imaging of vertical scratches (moving-direction scratches) on film



Emphasizes only the vertical scratch. Even if you increase the output, the background noise and brightness do not increase.



It's difficult to highlight only the vertical scratch. If you increase the output, the background noise and brightness increase but the contrast ratio does not.

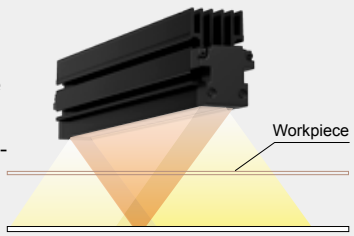
Applications

Scratch inspection on transparent film

Example configuration

Achieves bi-directional angled illumination using an original optical design. This is a line sensor light perfect for detecting moving-direction scratches.

LNIS series



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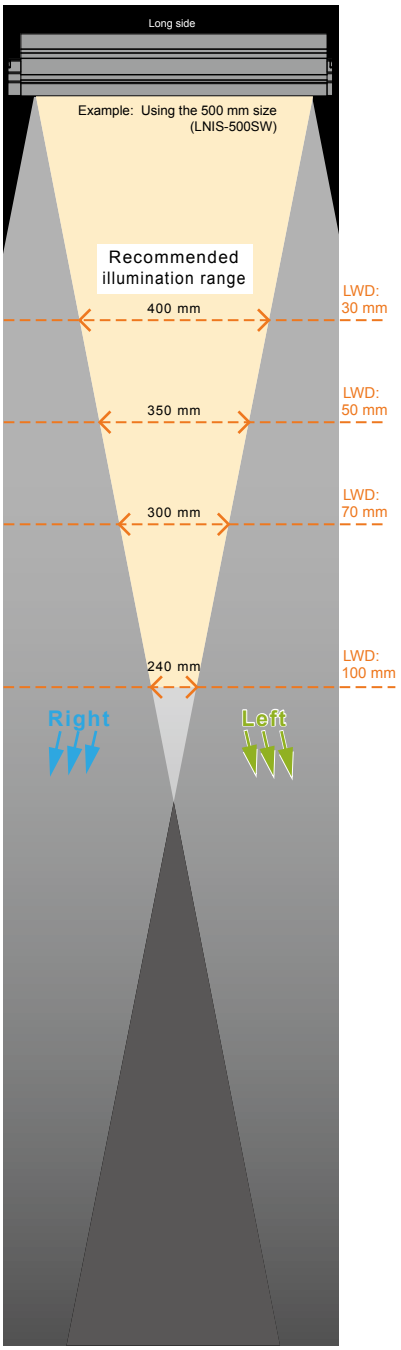
Recommended illumination range

Light Unit in use: LNIS-500SW

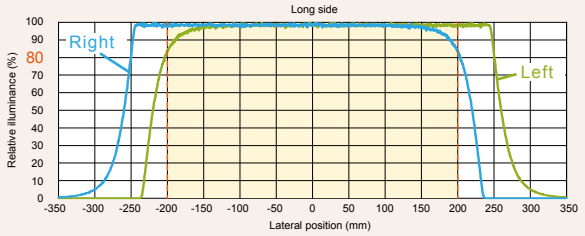


* LWD is the distance from the Line Light to the workpiece.

Graph of effective illumination range

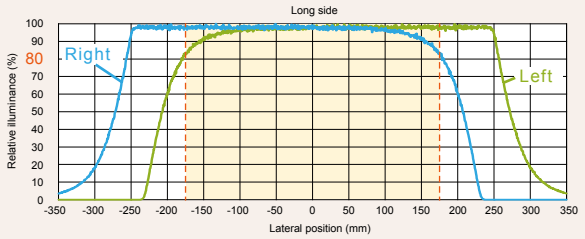
Illuminating distance: 30 mm

* The values are based on the simulation. Actual values may vary.



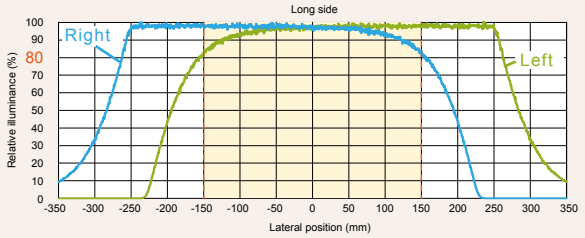
Illuminating distance: 50 mm

* The values are based on the simulation. Actual values may vary.



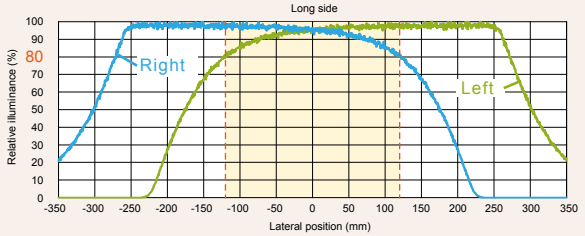
Illuminating distance: 70 mm

* The values are based on the simulation. Actual values may vary.



Illuminating distance: 100 mm

* The values are based on the simulation. Actual values may vary.



The section on the graph where "Left" and "Right" overlap is the section where light from the left and right sides overlaps. The recommended illumination range is the range in this overlapping section where each illuminance is ensured for 80% or higher of the peak.

* These graphs are for reference only. Actual values may vary.

Table of the recommended illumination range

(Where illuminance of the left/right beam is 80% of the peak value or more.) (mm)

LWD: Illuminating distance	Emitting surface length									
	100	200	300	400	500	600	700	800	900	1,000
10	40	140	240	340	440	540	640	740	840	940
30		100	200	300	400	500	600	700	800	900
50		50	150	250	350	450	550	650	750	850
70			100	200	300	400	500	600	700	800
100			40	140	240	340	440	540	640	740

* These values are based on the simulation. Actual range of the effective illumination depends on your imaging environment.

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LNIS series

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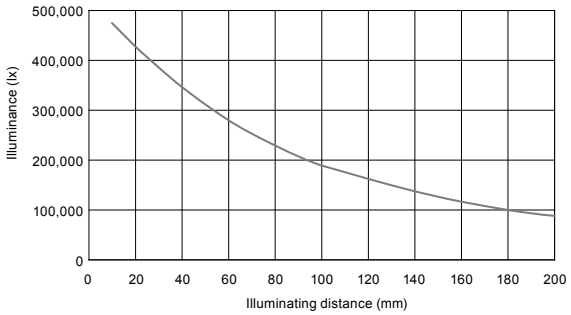
You can also use your smartphone or cell phone.

Data (Representative example)

*The graph included is for reference only. Actual values may vary.

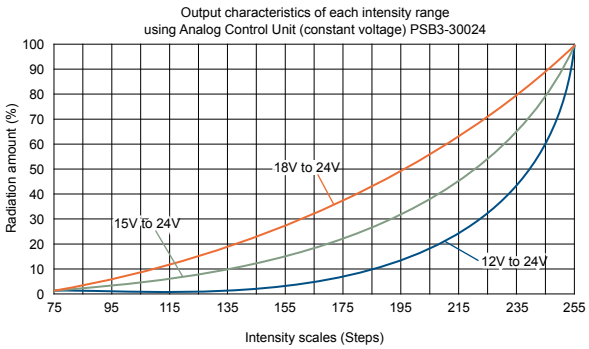
LNIS-500SW

Change in illuminance



* Actual measurement values at the center of the emitting surface, 100% intensity. Results for individual products may vary.

Graph of the correlation between intensity and output



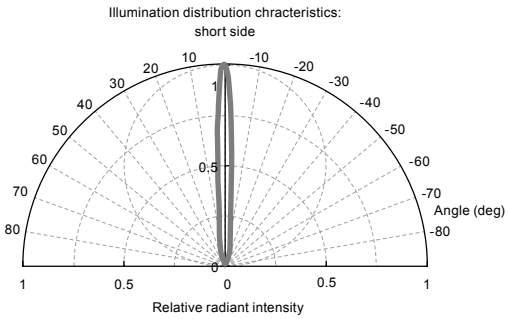
* Actual measurement values using Analog Control Unit PSB3-30024. Results for individual products may vary.
* Measured in each voltage range because the Analog Control Unit PSB3-30024 has a switching function for the lower limit of output voltage.

LNIS-400SW

Characteristics of the illumination distribution

Measuring direction: long side

Measuring direction: short side



* These graphs are for reference only. Actual values may vary.

Lineup

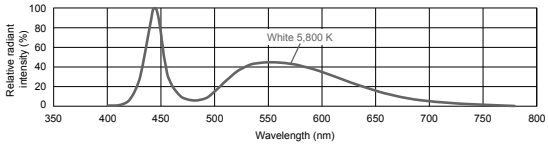
Model name	LED color	Power consumption	Correlated color temperature	Extension cables	Recommended Control Unit	Weight
LNIS-100SW	White	24 V / 21 W	5,800 K	FCB-1.25SQ-ME7 FCB-20-2.0SQ-ME7	PSB3-30024	430 g
LNIS-200SW		24 V / 41 W				760 g
LNIS-300SW		24 V / 61 W				1,090 g
LNIS-400SW		24 V / 81 W				1,420 g
LNIS-500SW		24 V / 101 W				1,740 g
LNIS-600SW		24 V / 121 W				2,070 g
LNIS-700SW		24 V / 142 W				2,400 g
LNIS-800SW		24 V / 162 W				2,730 g
LNIS-900SW		24 V / 182 W				3,050 g
LNIS-1000SW		24 V / 202 W				3,380 g

PSB3-30024 Product Page ▶ P.221

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (red/blue/IR, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the “Instruction Guide” included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

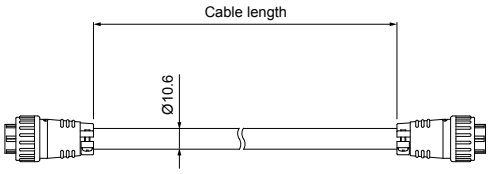
Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSB3-30024.

FCB-1.25SQ-ME7

Model name	Cable length	Weight
FCB-2-1.25SQ-ME7	2 m	430 g
FCB-3-1.25SQ-ME7	3 m	580 g
FCB-5-1.25SQ-ME7	5 m	1,000 g
FCB-10-1.25SQ-ME7	10 m	2,000 g

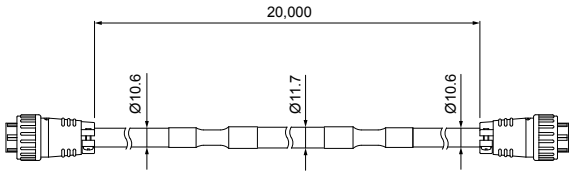
(mm)



Cable permitted bending radius: 63.6 mm

FCB-20-2.0SQ-ME7

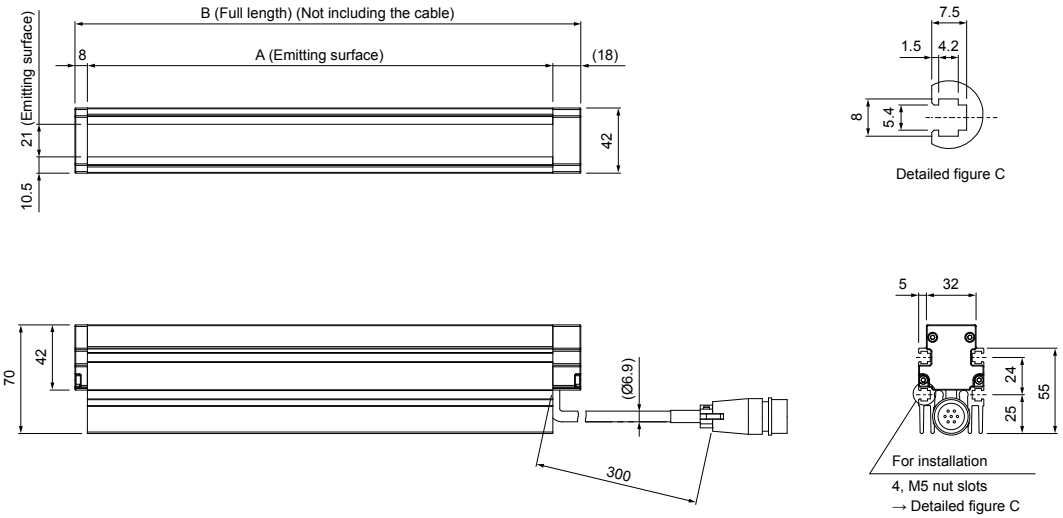
Model name	Cable length	Weight
FCB-20-2.0SQ-ME7	20 m	5,000 g



Cable permitted bending radius: 63.6 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)



Model name	A (Emitting surface)	B (Full length)	Model name	A (Emitting surface)	B (Full length)
LNIS-100SW	100	126	LNIS-600SW	600	626
LNIS-200SW	200	226	LNIS-700SW	700	726
LNIS-300SW	300	326	LNIS-800SW	800	826
LNIS-400SW	400	426	LNIS-900SW	900	926
LNIS-500SW	500	526	LNIS-1000SW	1,000	1,026

Line Lights
LNIS-FN series

Refer to our website for product details.
CCS LNIS-FN ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Achieves bi-directional angled illumination using an original optical design High output type which adopts forced air (fan)

LED color
Custom orders accepted
Size
Custom orders accepted

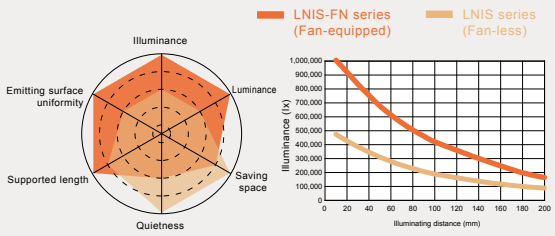
LNIS-400SW-FN

Applications Streak inspection for sheet surfaces, scratch inspection on clear film, scratch inspection on glass panels, and damage inspection for sheet metal, etc.

Illuminance of 678,000 lx using forced air (fan)

This is a high-output (fan-equipped) type of the LNIS series, developed to detect moving-direction scratches such as streaks. It meets the needs of customers who require even brighter lights.

Comparison between the LNIS and LNIS-FN



Series name	Brightness
LNIS-FN series	678,000 lx LWD = 50 mm
LNIS series	310,000 lx LWD = 50 mm

Other characteristics

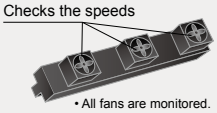
1) Emitting surface 100 to 1,500 mm long (can be made in units of 100 mm)
2) Due to the constant-current drive system, the emitting surface has uniformity higher than the LNIS series.

*The graph included is for reference only. Actual values may vary.

Avoid trouble with error detection

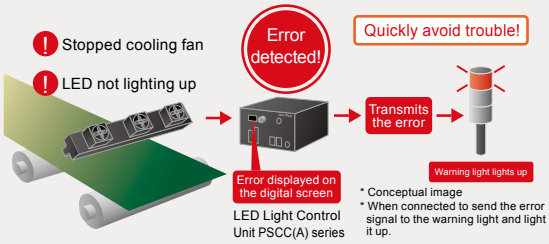
1) Error detection for cooling fans

An error is detected should a fault occur, such as insufficient speed or a stop in the cooling fans.



2) Error detection for the LEDs

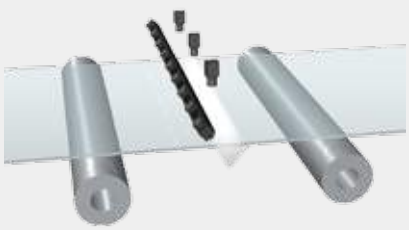
Detects dead LEDs due to an open in the Light Unit circuit or a shorted LED.



* Error detection is a function included with the PSCC(A) series, the recommended Control Units.

Applications

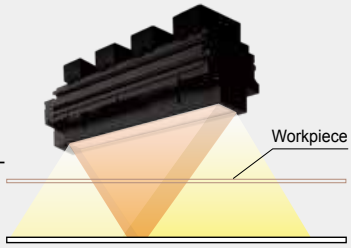
Scratch inspection on plate glass



Example configuration

Achieves bi-directional angled illumination using an original optical design. This is a line sensor light perfect for detecting moving-direction scratches. (fan cooling type)

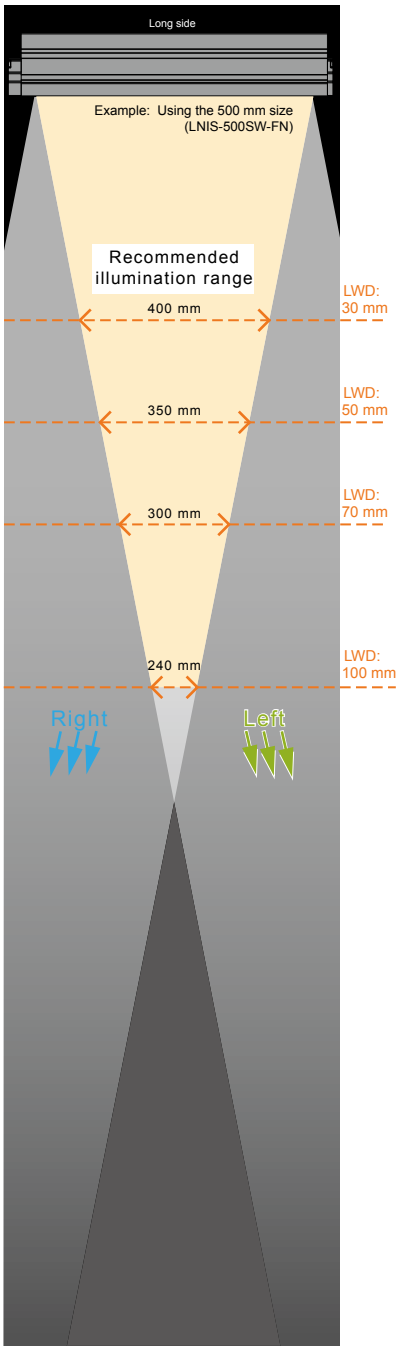
LNIS-FN series



We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Recommended illumination range

Light Unit in use: LNIS-500SW-FN

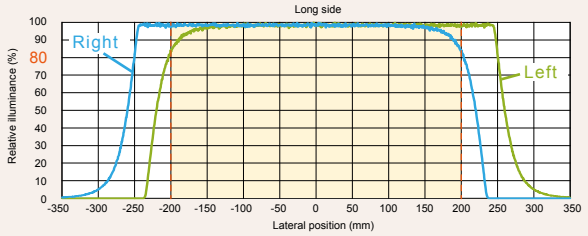


* LWD is the distance from the Line Light to the workpiece.

Graph of effective illumination range

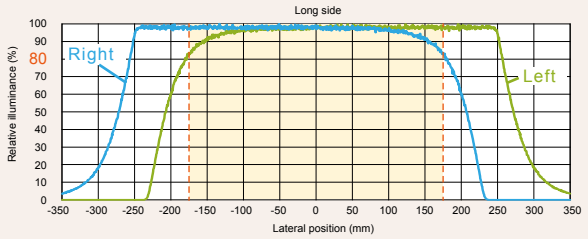
Illuminating distance: 30 mm

* The values are based on the simulation. Actual values may vary.



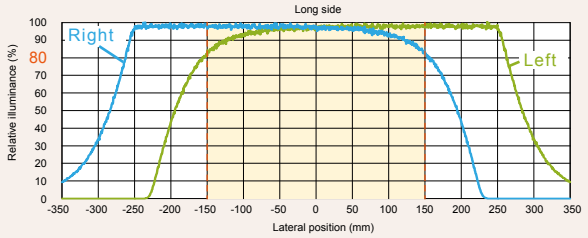
Illuminating distance: 50 mm

* The values are based on the simulation. Actual values may vary.



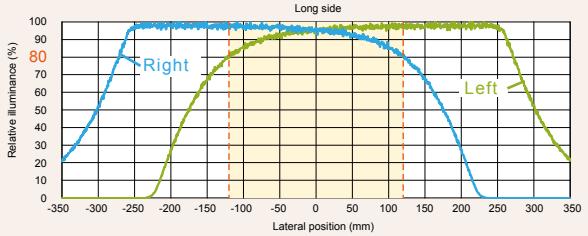
Illuminating distance: 70 mm

* The values are based on the simulation. Actual values may vary.



Illuminating distance: 100 mm

* The values are based on the simulation. Actual values may vary.



The section on the graph where "Left" and "Right" overlap is the section where light from the left and right sides overlaps. The recommended illumination range is the range in this overlapping section where each illuminance is ensured for 80% or higher of the peak.

* These graphs are for reference only. Actual values may vary.

Table of the recommended illumination range

(Where illuminance of the left/right beam is 80% of the peak value or more.) (mm)

LWD: Illuminating distance	Emitting surface length														
	100	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500
10	40	140	240	340	440	540	640	740	840	940	1,040	1,140	1,240	1,340	1,440
30		100	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400
50		50	150	250	350	450	550	650	750	850	950	1,050	1,150	1,250	1,350
70			100	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300
100			40	140	240	340	440	540	640	740	840	940	1,040	1,140	1,240

* These values are based on the simulation. Actual range of the effective illumination depends on your imaging environment.

You can inquire using our website.
Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here.
http://www.ccs-grp.com/contact/

LNIS-FN series

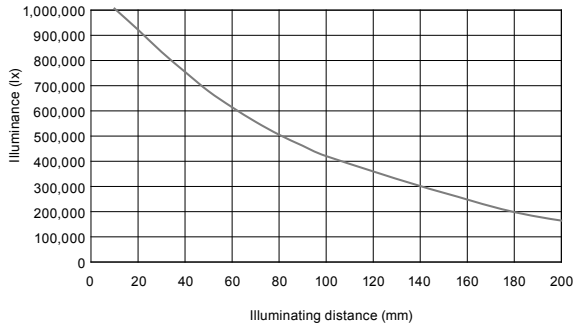
Refer to our website for product details.
CCS LNIS-FN ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Data (Representative example)

*The graph included is for reference only. Actual values may vary.

LNIS-400SW-FN

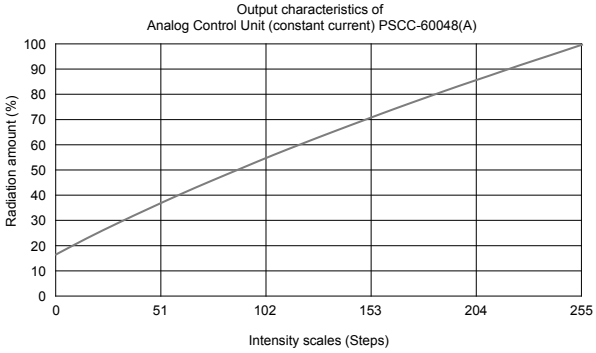
Change in illuminance



* Actual measurement values at the center of the emitting surface, 100% intensity.
Results for individual products may vary.

LNIS-1500SW-FN

Graph of the correlation between intensity and output



* Actual measurement values using the Analog Control Unit PSCC-60048(A) .
Results for individual products may vary.

Lineup

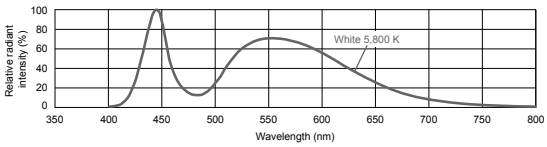
Model name	LED color	Power consumption (including fans)	Correlated color temperature	Extension cables	Recommended Control Units	Weight
LNIS-100SW-FN	White	41 W	5,800 K	QCBM / QCB	PSCC-30048(A) / PSCC-60048(A)	900 g
LNIS-200SW-FN		81 W				1,400 g
LNIS-300SW-FN		117 W				1,900 g
LNIS-400SW-FN		157 W				2,400 g
LNIS-500SW-FN		192 W				2,900 g
LNIS-600SW-FN		233 W				3,400 g
LNIS-700SW-FN		268 W				3,900 g
LNIS-800SW-FN		309 W			PSCC-60048(A)	4,400 g
LNIS-900SW-FN		345 W				4,900 g
LNIS-1000SW-FN		384 W				5,500 g
LNIS-1100SW-FN		425 W				6,000 g
LNIS-1200SW-FN		460 W				6,500 g
LNIS-1300SW-FN		501 W				7,000 g
LNIS-1400SW-FN		536 W				7,500 g
LNIS-1500SW-FN		576 W				8,000 g

PSCC(A) Series Product Page ▶ P.219

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your CCS sales representative.
In addition, we accept custom orders, such as changes to the LED color (red/blue/IR/UV, etc.) and size changes. Inquire at your CCS sales representative for details.

LED properties

Light spectrum



Be sure to read the “Instruction Guide” included with the product before use and observe cautionary information.
The data included is for reference only. Actual values may vary.

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

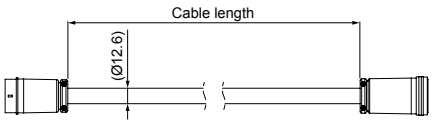
Extension cables

* Necessary when connecting the Light Unit to the recommended Control Unit, the PSCC(A) series.

QCBM

Model name	Cable length	Weight	Applicable Control Unit
QCBM-2	2 m	800 g	PSCC-30048(A)
QCBM-3	3 m	1,000 g	
QCBM-5	5 m	1,500 g	
QCBM-10	10 m	2,700 g	
QCBM-20	20 m	5,000 g	

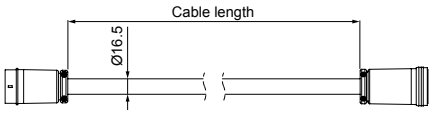
(mm)



Cable permitted bending radius: 75.6 mm

QCB

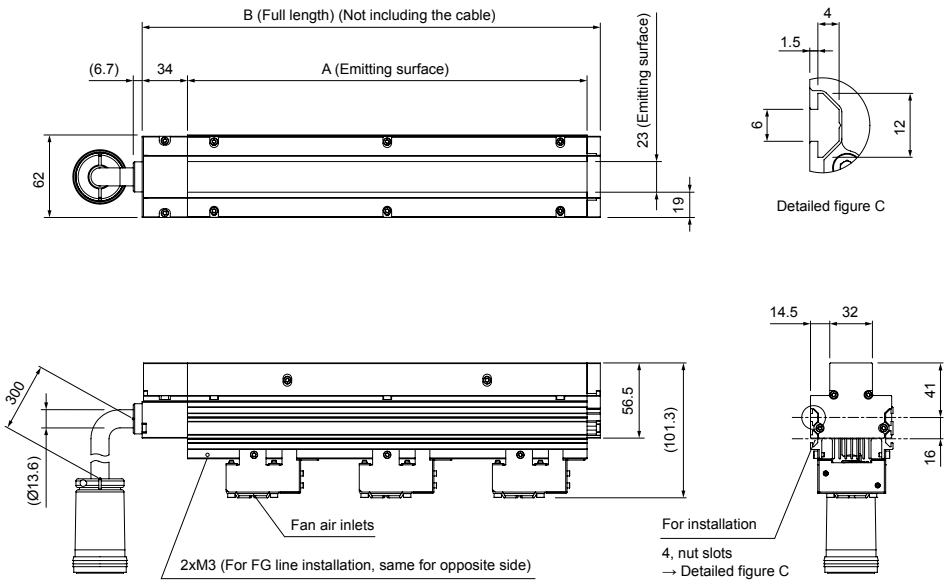
Model name	Cable length	Weight	Applicable Control Unit
QCB-2	2 m	1,100 g	PSCC-60048(A)
QCB-3	3 m	1,500 g	
QCB-5	5 m	2,400 g	
QCB-10	10 m	4,600 g	
QCB-20	20 m	8,900 g	



Cable permitted bending radius: 99 mm

* The above cable permitted bending radii are reference values. Actual values may vary.

Dimensions (mm)



Model name	A (Emitting surface)	B (Full length)	Model name	A (Emitting surface)	B (Full length)
LNIS-100SW-FN	100	144	LNIS-900SW-FN	900	944
LNIS-200SW-FN	200	244	LNIS-1000SW-FN	1,000	1,044
LNIS-300SW-FN	300	344	LNIS-1100SW-FN	1,100	1,144
LNIS-400SW-FN	400	444	LNIS-1200SW-FN	1,200	1,244
LNIS-500SW-FN	500	544	LNIS-1300SW-FN	1,300	1,344
LNIS-600SW-FN	600	644	LNIS-1400SW-FN	1,400	1,444
LNIS-700SW-FN	700	744	LNIS-1500SW-FN	1,500	1,544
LNIS-800SW-FN	800	844			

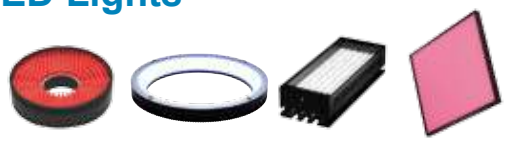
Area Specific Product Line-up

Light Units with Intensity Control Unit

IU series P.172

triniti

triniti-enabled LED Lights P.174



IP67 Compliant Products

IQ series P.178

High-Power Spot Lights/ Bar Lights

HL series P.179

High-Power Spot Lights

HSL-PCL series P.180

Inquiry for above products

CCS America Inc. (USA)

5 Burlington Woods Suite 204, Burlington, MA 01803 USA

TEL : +1-781-272-6900
FAX : +1-781-272-6902
Email : info@ccsamerica.com

CCS Europe NV/SA (Belgium)

Bergensesteenweg 423, Bus 13, 1600 Sint-Pieters-Leeuw, Belgium

TEL : +32-(0)2-333-0080
FAX : +32-(0)2-333-0081
Email : info@ccseu.com

CCS Asia PTE LTD. (Singapore)

63 Hillview Avenue #07-10, Lam Soon Industrial Building, Singapore 669569

TEL : +65-6769-1669
FAX : +65-6769-3422
Email : sales@ccs-asia.com.sg

Light Units with Intensity Control Unit

IU series

You can change light intensity and perform light ON/OFF control without an external controller.

Common specifications

Lighting method	Continuous lighting
Drive method	Constant-voltage system
Intensity control method	PWM control
PWM frequency	125 kHz
Input voltage (rating)	24 VDC
Input voltage (range)	21.6 to 24 VDC
Input connector	M12 (4 pins, male)
Cable length	670 mm (including the Intensity Control Unit)

Optional accessories

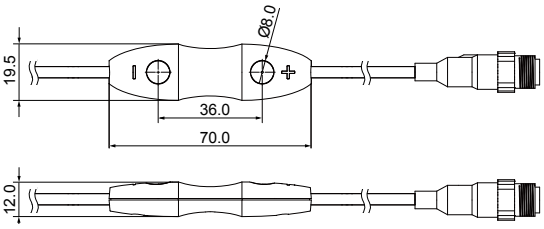
■ **Extension Cable**

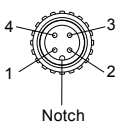
Model name: FRCB-n-M12-4M-4F (n=1, 2, 3)
This robot cable is used to extend the Light Unit cable length.
Cable length: 1, 2, 3 m

■ **Continuous Lighting Adapter**

Model name: FRCB-0.5-M12-AL-4M4F
This Adapter is used to continuously turn ON the Light Unit. A robot cable is used.
(Pins 1 and 4 are internally connected.)
Cable length: 0.5 m

Dimensions (mm)





Pin No.	Signal
1	24 VDC*1
2	NC
3	COMMON GND
4	ON/OFF input (+24 V)*2

*1 Voltage rating: 24 VDC, Voltage range: 21.6 to 24 VDC
- The brightness of the Light Unit will be lower when the input voltage is less than 24 VDC.
- Use a stable power source with an output voltage that does not fluctuate.

*2 Voltage rating: 24 VDC, Voltage range: 20 to 26.4 VDC

Area Specific Product Line-up

Area Specific Product Line-up

IU-series Products

Ring Lights

	Model name	Power consumption (typ.)
HPR2	HPR2-50RD-IU	8.1 W
	HPR2-50SW-IU	9.6 W
	HPR2-75RD-IU	11 W
	HPR2-75SW-IU	11 W
	HPR2-100RD-IU	11 W
	HPR2-100SW-IU	11 W
	HPR2-150RD-IU	11 W
	HPR2-150SW-IU	11 W
LDR2	LDR2-32RD2-IU	2.0 W
	LDR2-32SW2-IU	2.4 W
	LDR2-42RD2-IU	2.5 W
	LDR2-42SW2-IU	3.2 W
	LDR2-50RD2-IU	3.6 W
	LDR2-50SW2-IU	4.3 W
	LDR2-70RD2-IU	6.6 W
	LDR2-70SW2-IU	8.1 W
	LDR2-90RD2-IU	11 W
	LDR2-90SW2-IU	11 W
	LDR2-50RD2-WD-IU	3.6 W
	LDR2-70RD2-WD-IU	6.6 W
	LDR2-90RD2-WD-IU	11 W
LFR	LFR-100RD2-IU	4.1 W
	LFR-100SW2-IU	5.1 W
	LFR-130RD2-IU	5.1 W
	LFR-130SW2-IU	6.2 W
LKR	LKR-70RD2-IU	3.0 W
	LKR-70SW2-IU	4.3 W
LDR-LA1	LDR-75RD2-LA1-IU	3.0 W
	LDR-75SW2-LA1-IU	4.3 W
	LDR-96RD2-LA1-IU	3.6 W
	LDR-96SW2-LA1-IU	4.3 W
	LDR-146RD2-LA1-IU	5.1 W
	LDR-146SW2-LA1-IU	6.6 W
	LDR-176RD2-LA1-IU	6.6 W
	LDR-176SW2-LA1-IU	8.1 W
	LDR-206RD2-LA1-IU	7.6 W
	LDR-206SW2-LA1-IU	9.6 W
LDR2-LA	LDR2-48RD2-LA-IU	2.5 W
	LDR2-48SW2-LA-IU	3.6 W
	LDR2-74RD2-LA-IU	5.1 W
	LDR2-74SW2-LA-IU	6.2 W
	LDR2-100RD2-LA-IU	9.6 W
	LDR2-100SW2-LA-IU	11 W
	LDR2-132RD2-LA-IU	11 W
	LDR2-132SW2-LA-IU	11 W

Dome Lights

	Model name	Power consumption (typ.)
HPD2	HPD2-75RD-IU	11 W
	HPD2-75SW-IU	11 W
	HPD2-100RD-IU	11 W
	HPD2-100SW-IU	11 W
	HPD2-150RD-IU	11 W
	HPD2-150SW-IU	11 W

Back Lights

	Model name	Power consumption (typ.)
LFL	LFL-612RD2-P-IU	1.0 W
	LFL-612SW2-P-IU	0.9 W
	LFL-1012RD2-IU	1.0 W
	LFL-1012SW2-IU	1.3 W
	LFL-1012RD2-P-IU	1.0 W
	LFL-1012SW2-P-IU	1.3 W
	LFL-3212RD2-IU	2.0 W
	LFL-3212SW2-IU	2.8 W
	LFL-4012RD2-IU	2.5 W
	LFL-4012SW2-IU	3.2 W
	LFL-50RD2-IU	3.0 W
	LFL-50SW2-IU	3.6 W
	LFL-100RD2-IU	4.1 W
	LFL-100SW2-IU	5.8 W

Coaxial Lights

	Model name	Power consumption (typ.)
LFV3	LFV3-CP-13RD-IU	2.5 W
	LFV3-CP-13SW-IU	2.8 W
	LFV3-CP-18RD-IU	3.8 W
	LFV3-CP-18SW-IU	4.6 W
	LFV3-34RD-IU	4.2 W
	LFV3-34SW-IU	3.7 W
	LFV3-35RD-IU	3.6 W
	LFV3-35SW-IU	4.2 W
	LFV3-40RD-IU	5.1 W
	LFV3-40SW-IU	5.1 W
	LFV3-50RD-IU	8.6 W
	LFV3-50SW-IU	11 W
	LFV3-70RD-IU	11 W
	LFV3-70SW-IU	11 W

Square Lights

	Model name	Power consumption (typ.)
FPQ2	FPQ2-32RD-IU	6.6 W
	FPQ2-32SW-IU	5.6 W
	FPQ2-48RD-IU	6.3 W
	FPQ2-48SW-IU	11 W

triniti™ Gardasoft Technology

CCS Creating Customer Satisfaction

triniti™ technology

Expert control of Machine Vision lighting… made easy

triniti™ is a new, enabling technology from Gardasoft, which provides expert control, operational intelligence and full integration of Machine Vision Lighting — all within a 'plug-&-play' environment.

With **triniti**, Machine Vision systems with LED Lighting are now much easier to create, configure and commission, while, at the same time, offering increased functionality.

This is because complex control techniques have now been made very easy to implement.

triniti delivers many benefits to users, including that it:

- enables non-expert users to use expert Machine Vision lighting techniques
- revolutionises the integration of lighting parameters right through to application level software
- addresses the industry's identified need for a highly flexible system that is also readily 'plug-&-play'
- provides a stability of brightness, long-term, that helps to enhance the reliability of Machine Vision systems, over many years.

Interworking between Machine Vision product manufacturers

As a system-enabling technology, **triniti** embraces a collaborative approach with leading manufacturers of LED Lighting and providers of Machine Vision software.

LED Lighting - CCS is one of the world's most prominent Machine Vision product manufacturers; CCS is also one of the leading triniti partners for LED Lighting.

CCS Creating Customer Satisfaction

Machine Vision APIs - The triniti API is compatible with Image Processing Software from leading suppliers that include Cognex, Stemmer Imaging and National Instruments.

BLOX COGNEX HALCON MathWorks matrox NATIONAL INSTRUMENTS

* All trademarks acknowledged.

triniti™ comprises three key technological elements:

1 Integration of Lights into software

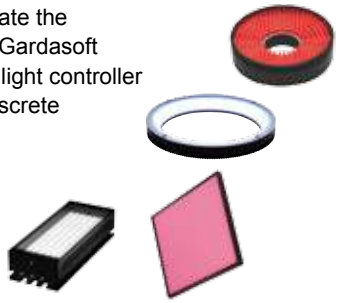
triniti-enabled LED lights are seamlessly integrated into Machine Vision networks, providing diagnostic and configuration benefits through imaging and application processing software.

2 Expert Light Control

triniti systems incorporate the control functionality of Gardasoft Vision's patented LED light controller technology, in either discrete or embedded form.

3 Light Identification and Operational Data

triniti systems incorporate the control functionality of Gardasoft Vision's patented LED light controller technology, in either discrete or embedded form.



Area Specific Product Line-up

A Collaboration of Machine Vision manufacturers: LED lighting; image processing software; expert light control

triniti™ products and developments

As part of the collaborative development programme, **triniti** deliverables include core hardware and software elements that are integrated with, or embedded into, products from leading LED Light hardware and Machine Vision software manufacturers.

triniti also exploits standard Machine Vision networking and communication architectures such as **GigE Vision** and **GenICam**, in order to ensure that the resulting solutions are fully integrated as follows:

a) triniti Machine Vision Software Interface (API)

triniti-enabled LED lights are seamlessly integrated into Machine Vision networks and provide diagnostic and configuration benefits through Image Processing Software.

b) triniti Protocols

The **GigE Vision** protocol has been implemented in the **triniti** Controllers so that intelligent cameras and applications and libraries which support **GigE Vision** or GenICam can interface directly to **triniti** Controllers.

c) triniti Controller

These are LED Light Controllers which inherit the patented Gardasoft functionality, and combine this with **triniti** communication and GigE Vision compatibility.

d) triniti Chip

The **triniti** chip has been built into partners' lights or light cabling. It holds manufacturer's data on the lights, stores dynamic usage data and can return measurements from sensors within the light.

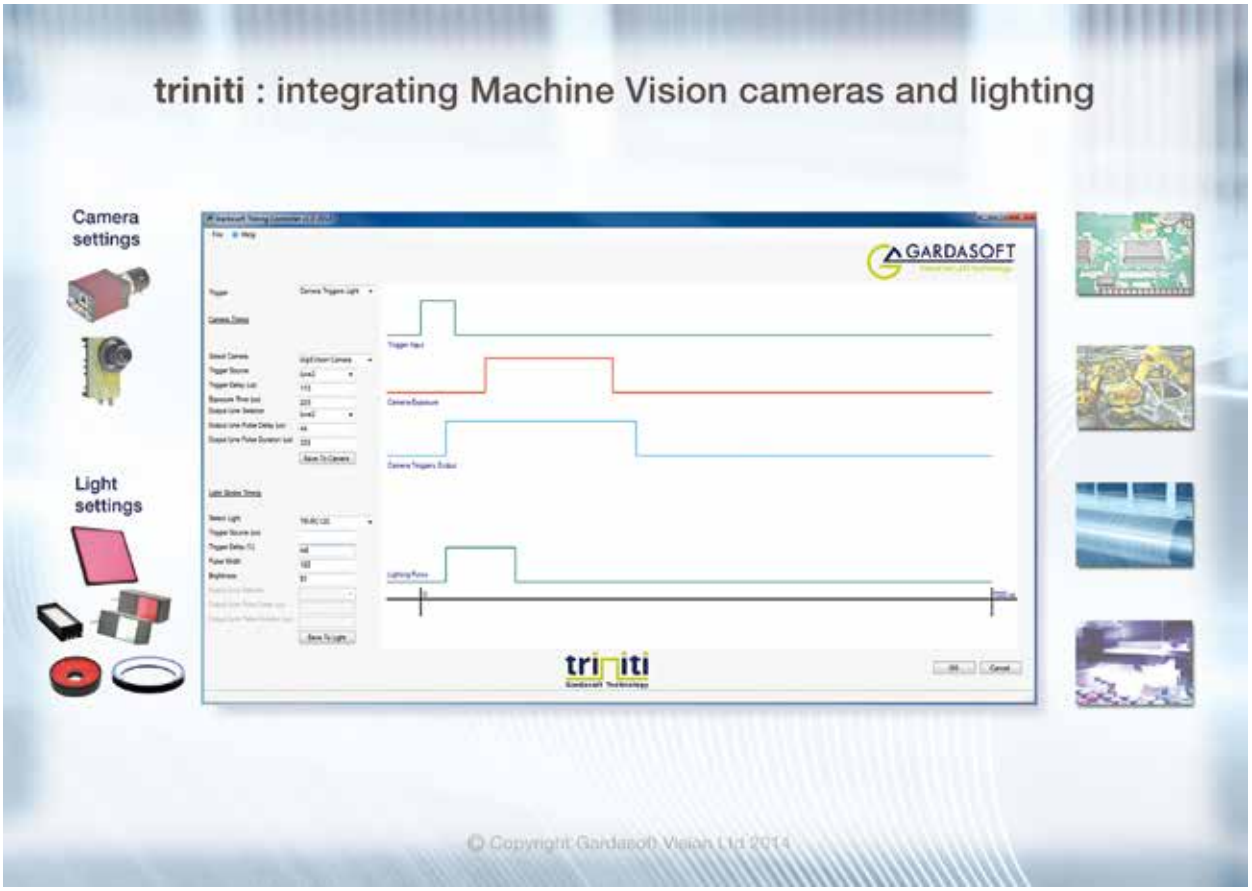
triniti™ provides APIs for integration with Image Processing Software

triniti offers much closer integration of lighting to the application level. This is done by providing links from the applications to the light through industry-standard protocols and software APIs for specific environments.

triniti API extensions are available for leading Machine Vision software for Image Processing and System configuration — with the result that a full graphical interface is provided to the user for configuration and synchronisation between GigE Vision (and other cameras) and lighting.

By integrating camera and lighting configuration and control at the application level, the operation of the system as a whole can be more visible.

For example, a timing diagram (like the below example) showing the timing of the trigger source, camera exposure time and lighting pulses, can be shown on-screen, to make it much easier for both development and diagnostics.



triniti™ gives expert control

With **triniti**-enabled lighting, users benefit from having expert control techniques for their lighting systems readily available — with an ease-of-use more typically associated with 'plug-&-play' products.

Functional advantages include enhanced overdrive and pulse control, and flexible light switching and synchronisation.
(Note: refer to **CCS** – www.ccs-grp.com – for specific details.)

'Plug-&-play' customer benefits include:
Optimum application settings for lighting are easy to configure, multiple light systems are easy to manage, and automatic adjustment can maintain more stable brightness over many years of operation.

Expert customer benefits include:
Machine Vision functionality is increased, as performance is improved, and the potential of camera and lighting equipment can be fully exploited. This means that system reliability is maximised, and at the same time, services to end users can be extended and enhanced.

Area Specific Product Line-up

triniti Products

Model Name	Led Color	Wavelenght/ Correlated Color temp.	Options		Weight (g)
Ring Lights					
LDR2-32RD2-TR	Red	630 nm	Diffusion plate Plorization plate	Lens attachment ring	30
LDR2-32SW2-TR	White	5.500 K	Diffusion plate Plorization plate	Lens attachment ring	30
LDR2-42RD2-TR	Red	630 nm	Diffusion plate Plorization plate	Adapter	50
LDR2-42SW2-TR	White	5.500 K	Diffusion plate Plorization plate	Adapter	50
LDR2-50RD2-TR	Red	630 nm	Diffusion plate Plorization plate	Lens attachment ring	50
LDR2-50SW2-TR	White	5.500 K	Diffusion plate Plorization plate	Lens attachment ring	50
LDR2-70RD2-TR	Red	630 nm	Diffusion plate	Plorization plate	110
LDR2-70SW2-TR	White	5.500 K	Diffusion plate Plorization plate		120
LDR2-74RD2-LA-TR	Red	630 nm	Diffusion plate		90
LDR2-74SW2-LA-TR	White	5.500 K	Diffusion plate		90
LDR2-100RD2-LA-TR	Red	630 nm	Diffusion plate		170
LDR2-100SW2-LA-TR	White	5.500 K	Diffusion plate		170
LDR2-132RD2-LA-TR	Red	630 nm	Diffusion plate		270
LDR2-132SW2-LA-TR	White	5.500 K	Diffusion plate		270
HPR2-50RD-TR	Red	635 nm	Bracket		46
HPR2-50SW-TR	White	6.000 K	Bracket		46
HPR2-50BL-TR	Blue	470 nm	Bracket		46
HPR2-75RD-TR	Red	635 nm	Bracket		160
HPR2-75SW-TR	White	6.000 K	Bracket		160
HPR2-75BL-TR	Blue	470 nm	Bracket		160
HPR2-100RD-TR	Red	635 nm	Bracket		170
HPR2-100SW-TR	White	6.000 K	Bracket		170
HPR2-100BL-TR	Blue	470 nm	Bracket		170
Square Lights					
FPQ2-32RD-TR	Red	630 nm		-	50
FPQ2-32SW-TR	White	6.000 K		-	50
FPQ2-48RD-TR	Red	630 nm		-	85
FPQ2-48SW-TR	White	6.000 K		-	85
Bar Light					
LDL2-33X8RD-TR	Red	635 nm	Diffusion plate Plorization plate	Bracket	20
LDL2-33X8SW-TR	White	6.600 K	Diffusion plate Plorization plate	Bracket	20
LDL2-41X16RD-NR-TR	Red	635 nm	Diffusion plate Plorization plate	Protective plate Bracket	50
LDL2-41X16SW-NR-TR	White	6.600 K	Diffusion plate Plorization plate	Protective plate Bracket	50
LDL2-41X16RD-WD-TR	Red	635 nm	Diffusion plate Plorization plate	Protective plate Bracket	50
LDL2-41X16SW-WD-TR	White	6.600 K	Diffusion plate Plorization plate	Protective plate Bracket	50
LDL2-119X16RD-NR-TR	Red	635 nm	Diffusion plate Plorization plate	Protective plate Bracket	95
LDL2-119X16SW-NR-TR	White	6.600 K	Diffusion plate Plorization plate	Protective plate Bracket	95
LDL2-119X16RD-WD-TR	Red	635 nm	Diffusion plate Plorization plate	Protective plate Bracket	95
LDL2-119X16SW-WD-TR	White	6.600 K	Diffusion plate Plorization plate	Protective plate Bracket	95
LDL2-74X30RD-NR-TR	Red	635 nm	Diffusion plate Plorization plate	Protective plate Bracket	100
LDL2-74X30SW-NR-TR	White	6.600 K	Diffusion plate Plorization plate	Protective plate Bracket	100
LDL2-74X30RD-WD-TR	Red	635 nm	Diffusion plate Plorization plate	Protective plate Bracket	100
LDL2-74X30SW-WD-TR	White	6.600 K	Diffusion plate Plorization plate	Protective plate Bracket	100
Flat Lights					
TH-27X27RD-TR	Red	635 nm	Light control film	Bracket	30
TH-27X27SW-TR	White	6.600 K	Light control film	Bracket	30
TH-43X35RD-TR	Red	635 nm	Light control film	Bracket	40
TH-43X35SW-TR	White	6.600 K	Light control film	Bracket	40
TH-51X51RD-TR	Red	635 nm	Light control film	Bracket	60
TH-51X51SW-TR	White	6.600 K	Light control film	Bracket	60
TH-63X60RD-TR	Red	635 nm	Light control film	Bracket	100
TH-63X60SW-TR	White	6.600 K	Light control film	Bracket	100
TH-83X75RD-TR	Red	635 nm	Light control film	Bracket	140
TH-83X75SW-TR	White	6.600 K	Light control film	Bracket	140
TH-100X100RD-TR	Red	635 nm	Light control film	Bracket	200
TH-100X100SW-TR	White	6.600 K	Light control film	Bracket	200
Dome Lights					
HPD2-75RD-TR	Red	635 nm	Bracket		140
HPD2-75SW-TR	White	6.500 K	Bracket		140
HPD2-75BL-TR	Blue	470 nm	Bracket		140
HPD2-100RD-TR	Red	635 nm	Bracket		160
HPD2-100SW-TR	White	6.500 K	Bracket		160
HPD2-100BL-TR	Blue	470 nm	Bracket		160
Coaxial Lights					
LFV3-CP-18RD-TR	Red	635 nm		-	80
LFV3-CP-18SW-TR	White	6.000 K		-	80
LFV3-35RD-TR	Red	635 nm	Diffusion plate Plorization plate	Light control film	175
LFV3-35SW-TR	White	6.000 K	Diffusion plate Plorization plate	Light control film	175
LFV3-50RD-TR	Red	635 nm	Diffusion plate Plorization plate	Light control film	335
LFV3-50SW-TR	White	6.000 K	Diffusion plate Plorization plate	Light control film	335

IP67 Compliant Products

IQ series


IRL-092035-63


IRL-092035-63-DF


IRL-092035-SW


IRL-092035-SW-DF


IBR-150030-63


IBR-150030-63-DF


IBR-150030-SW


IBR-150030-SW-DF


IBL-080080-63-DF


IBL-080080-SW-DF

Common specifications

Input voltage	24 VDC
Cable length	0.5 m
Input connector	M12 male 4 pins connector
Polarity & signal	1: +(Brown), 2: NC(White), 3: -(Blue), 4: Signal(Black)
ON/OFF	ON: 0V, OFF: 24V
Wavelength(typ.)	Red: 630 nm, White: 6,000 K
Operating temperature and humidity	Temperature: 0 to 40°C, Humidity: 20% to 100% , IP67
Storage temperature and humidity	Temperature: −20 to 60°C, Humidity: 20% to 85%RH (with no condensation)
Cooling method	Natural air cooling
Cooling method	Photo-coupler input, Input current 5 mA or more, Over 20 μs pulse width, Rise/fall time 10 μs max.
Delay time	Max. 10 μs (Trigger input - Strobing)

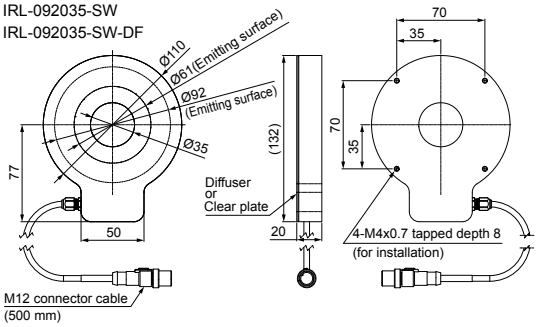
Model specifications

Type	Model name	LED color	Type of lighting	Power consumption (max.)	Weight (max.)
Ring Light	IRL-092035-63	Red	Direct	6 W	400 g
	IRL-092035-63-DF		Diffused		
	IRL-092035-SW	White	Direct	7 W	
	IRL-092035-SW-DF		Diffused		
Bar Light	IBR-150030-63	Red	Direct	6 W	400 g
	IBR-150030-63-DF		Diffused		
	IBR-150030-SW	White	Direct	8 W	
	IBR-150030-SW-DF		Diffused		
Flat Light	IBL-080080-63-DF	Red	Diffused	8 W	420 g
	IBL-080080-SW-DF	White		12 W	

Dimensions (mm)

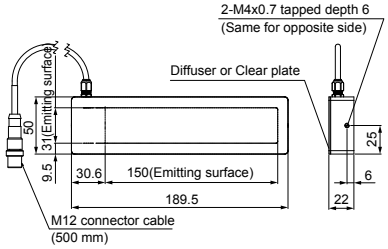
Ring Light

IRL-092035-63
IRL-092035-63-DF
IRL-092035-SW
IRL-092035-SW-DF



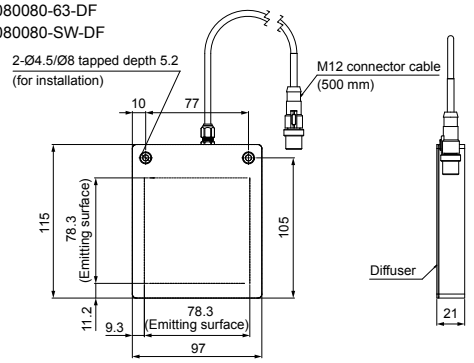
Bar Light

IBR-150030-63
IBR-150030-63-DF
IBR-150030-SW
IBR-150030-SW-DF



Flat Light

IBL-080080-63-DF
IBL-080080-SW-DF



High-Power Spot Lights / Bar Lights

HL series

Spot Light

Bar Light

Characteristics

- Controller and 3 m cable included
- 24 V input power to controller
- Controller drives continuous and non-overdriven strobe illumination
- Robust aluminum housing with superior heat transfer properties
- Efficient thermal management through heat fin design
- Adjustable mounting M5 nuts via (2) nut channels on back face
- RoHS compliant
- CE certified

Applications

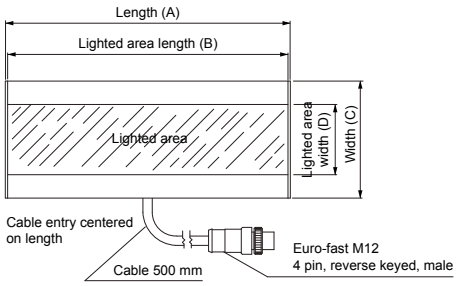
- Robot guidance
- Web inspections
- Package sorting
- General packaging
- Palletizing

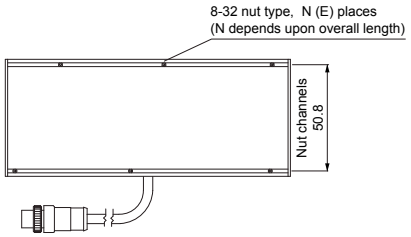
Common specifications

LED color	Red, white, blue, green
Peak wavelength	Red: 635 nm, Blue: 470 nm, Green: 530 nm, Infrared: 850 nm
Power consumption	2.8 W max.
Polarity & signal	1: Light ID In, 2: LED +, 3: LED-, 4: Light ID Out
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)

Model name	Power consumption	Weight (g)	Length (mm)		Width (mm)		Height (mm)	Number of nuts(E)
			(A)	(B)	(C)	(D)		
HBR-045063-RD HBR-045063-SW/BL/GR/IR	24 V / 1.5 W	317	44.5	38	63	38	32	1x2 rows
HBR-165063-RD HBR-165063-SW/BL/GR/IR	24 V / 7.5 W 24 V / 8.5 W	590	165	159				2x2 rows
HBR-317063-RD HBR-317063-SW/BL/GR/IR	24 V / 15 W 24 V / 17 W	1,179	317	311				3x2 rows
HBR-470063-RD HBR-470063-SW/BL/GR/IR	24 V / 22.5 W	1,406	470	464				4x2 rows
HBR-622063-RD HBR-622063-SW/BL/GR/IR	24 V / 30 W 24 V / 34 W	2,495	622	616				
HBR-991063-RD HBR-991063-SW/BL/GR/IR	24 V / 48 W 24 V / 53 W	3,856	991	984				5x2 rows

Dimensions (mm)





HBR Controller

HLC series

Characteristics

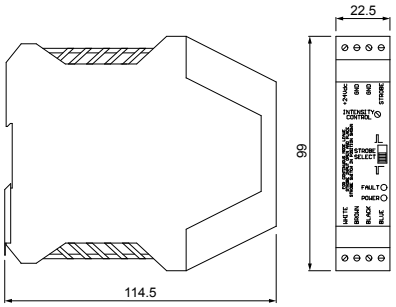
- 24 VDC Input
- Intensity control from 10% to 100% continuous or (non-overdriving) strobe mode operation
- DIN rail mountable
- Protective circuitry to prevent damage to light if connected to wrong controller
- Recessed switches
- Compact

* This Control Unit is bundled with the Light Unit above.

Common specifications

Supply voltage	24 VDC	Mounting	DIN Rail (35 mm)
Intensity	Adjustable from 10% to 100% output on-board or via external 0-10V analog signal	Strobe mode	Trigger response selectable between rising or falling edge of the trigger Output pulse width follows input pulse width
Connections	2 x 4 position screw type blocks	Trigger inputs	CMOS / TTL compatible
Top	+24 VDC, GND, Strobe, Ext Intensity	Minimum pulse width	10 µs
Bottom	White, black, brown, blue	Trigger to pulse delay	200 µs maximum
Front panel indicators	Power - indicates DC power presence Fault - LED turns on when mismatched with light, no connection, or fault in light	Rise and fall times	1 µs
Operating temperature	0°C to 45°C Humidity 0 to 90% (non-condensing)	Continuous mode	Leave the trigger input open, place trigger switch in falling edge (normally high) position.
Storage temperature	-40°C to 100°C Humidity 0 to 90% (non-condensing)	Extension cable	3 m, M12, 4-pin, reverse keyed female connector to flying leads
Dimensions	114.5 mm (L) x 22.5 mm (W) x 99 mm (H)		

Dimensions (mm)



High-Power Spot Lights

HSL-PCL series

CE

Characteristics

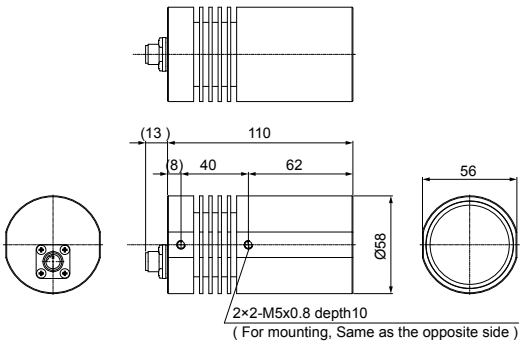
- For replacement of halogen
- Long lifetime
- Low power consumption
- High uniformity
- IP67 Compliant

Model name	LED color
HSL-58RD-D300PCL	Red
HSL-58SW-D300PCL	White
HSL-58BL-D300PCL	Blue
HSL-58GR-D300PCL	Green

Common specifications

LED color	Red, White, Blue, Green
Peak wavelength	Red: 645 nm typ., Blue: 470 nm typ., Green: 520 nm typ.
Power consumption	2.8 W max.
Polarity & signal	1: (+), 2: no connection, 3: (-), 4: (R)
Housing material	Aluminum
Cooling method	Natural air cooling
Recommended LWD	2,000 mm or less
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	400 g

Dimensions (mm)



Recommended Controller

CC-PJ series

CE

Refer to P.183 for more details.

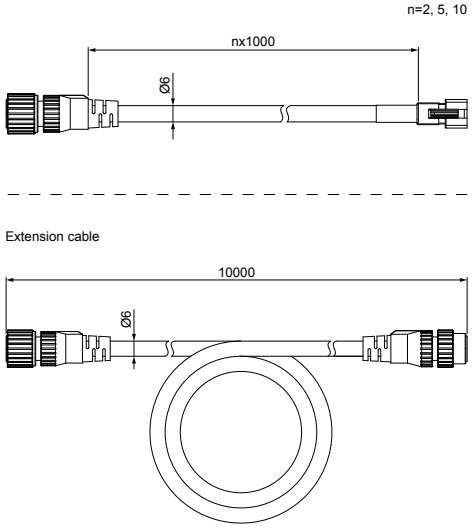
Characteristics

- Constant-current analog controller
- Compact & space-saving
- 1-channel light output
- 100 different levels of light intensity
- 24 VDC input
- CE certified
- ON/OFF control and Strobe lighting via External control

HSL-PCL Cable

2 m	FCB-2-HSL-SM
5 m	FCB-5-HSL-SM
10 m	FCB-10-HSL-SM
10 m	FCB-EX10-HSL (Extension cable)

Dimensions (mm)



Telecentric Lenses
SE-65/SE-110 series

Refer to our website for product details.
CCS telecentric lens ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Object-side telecentric lenses supporting a wide variety of applications beyond just dimension measuring

SE-65 series (WD 65 mm)

Straight type
0.8x to 4x

Coaxial type
0.8x to 4x

SE-110 series (WD 110 mm)

Straight type
0.8x to 4x

Coaxial type
0.8x to 4x

SE-65/SE-110 series specifications

Coaxial type

Model name	SE-65VT08	SE-65VT10	SE-65VT15	SE-65VT20	SE-65VT40	SE-110VT08	SE-110VT10	SE-110VT15	SE-110VT20	SE-110VT40
Optical magnification	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%
WD	67.7±2 mm	65.2±2 mm	65.0±2 mm	65.1±2 mm	65.1±2 mm	110.4±3.3 mm	110.0±3.3 mm	114.1±3.4 mm	110.0±3.3 mm	110.0±3.3 mm
Depth of field *1	1.85 mm	1.33 mm	0.59 mm	0.33 mm	0.13 mm	2 mm	1.6 mm	0.86 mm	0.65 mm	0.2 mm
Resolution *2	12.4 µm	11.2 µm	7.5 µm	5.6 µm	4.3 µm	13.4 µm	13.4 µm	10.8 µm	10.8 µm	6.6 µm
NA	0.027	0.030	0.045	0.060	0.078	0.025	0.025	0.031	0.031	0.051
Actual F-number (Fe)	14.9	16.8	16.7	16.7	25.4	16.0	19.9	24.0	32.0	39.5
TV distortion	-0.027%	-0.010%	-0.017%	-0.013%	+0.006%	-0.05%	-0.05%	+0.01%	-0.01%	+0.01%
Weight	50 g	54 g	37 g	38 g	40 g	54 g	56 g	48 g	50 g	50 g
Mount	C mount					C mount				
Maximum applicable image size	1/1.8 inch					1/1.8 inch				
Physical distance (O/I)	164.6 mm	172.1 mm	133.3 mm	135.8 mm	147 mm	211 mm	213.9 mm	208 mm	216.1 mm	212.5 mm

*1: The depth of field is a value calculated using 40 µm as the permissible circle of confusion.
*2: The resolution is a value calculated using a 550 nm wavelength. The specifications above are values based on the optical design. Differences between individual devices may occur due to assembly accuracy, etc.

Straight type

Model name	SE-65ST08	SE-65ST10	SE-65ST15	SE-65ST20	SE-65ST40	SE-110ST08	SE-110ST10	SE-110ST15	SE-110ST20	SE-110ST40
Optical magnification	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%	0.8x±5%	1.0x±5%	1.5x±5%	2.0x±5%	4.0x±5%
WD	67.7±2 mm	65.2±2 mm	65.0±2 mm	65.1±2 mm	65.1±2 mm	110.4±3.3 mm	110.0±3.3 mm	114.1±3.4 mm	110.0±3.3 mm	110.0±3.3 mm
Depth of field *1	1.85 mm	1.33 mm	0.59 mm	0.33 mm	0.13 mm	2 mm	1.6 mm	0.86 mm	0.65 mm	0.2 mm
Resolution *2	12.4 µm	11.2 µm	7.5 µm	5.6 µm	4.3 µm	13.4 µm	13.4 µm	10.8 µm	10.8 µm	6.6 µm
NA	0.027	0.030	0.045	0.060	0.078	0.025	0.025	0.031	0.031	0.051
Actual F-number (Fe)	14.9	16.8	16.7	16.7	25.4	16.0	19.9	24.0	32.0	39.5
TV distortion	-0.027%	-0.010%	-0.017%	-0.013%	+0.006%	-0.05%	-0.05%	+0.01%	-0.01%	+0.01%
Weight	45 g	49 g	32 g	33 g	35 g	49 g	51 g	43 g	45 g	45 g
Mount	C mount					C mount				
Maximum applicable image size	1/1.8 inch					1/1.8 inch				
Physical distance (O/I)	164.6 mm	172.1 mm	133.3 mm	135.8 mm	147 mm	211 mm	213.9 mm	208 mm	216.1 mm	212.5 mm

*1: The depth of field is a value calculated using 40 µm as the permissible circle of confusion.
*2: The resolution is a value calculated using a 550 nm wavelength. The specifications above are values based on the optical design. Differences between individual devices may occur due to assembly accuracy, etc.

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Field of vision chart

* These values are for reference.

Coaxial type

Model name	Optical magnification	Sensor size: 1/1.8 inch			Sensor size: 1/2 inch			Sensor size: 1/3 inch		
		Length	Width	Diagonal	Length	Width	Diagonal	Length	Width	Diagonal
SE-65VT08	0.8x	6.65	8.98	11.16	6.00	8.00	10.00	4.50	6.00	7.50
SE-65VT10	1.0x	5.32	7.18	8.93	4.80	6.40	8.00	3.60	4.80	6.00
SE-65VT15	1.5x	3.55	4.78	5.95	3.20	4.27	5.33	2.40	3.20	4.00
SE-65VT20	2.0x	2.66	3.59	4.47	2.40	3.20	4.00	1.80	2.40	3.00
SE-65VT40	4.0x	1.33	1.80	2.23	1.20	1.60	2.00	0.90	1.20	1.50
SE-110VT08	0.8x	6.65	8.97	11.17	6.00	8.00	10.00	4.50	6.00	7.50
SE-110VT10	1.0x	5.32	7.18	8.93	4.80	6.40	8.00	3.60	4.80	6.00
SE-110VT15	1.5x	3.55	4.78	5.95	3.20	4.27	5.33	2.40	3.20	4.00
SE-110VT20	2.0x	2.66	3.59	4.47	2.40	3.20	4.00	1.80	2.40	3.00
SE-110VT40	4.0x	1.33	1.79	2.23	1.20	1.60	2.00	0.90	1.20	1.50

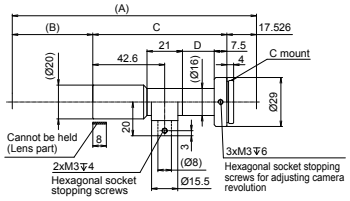
Straight type

Model name	Optical magnification	Sensor size: 1/1.8 inch			Sensor size: 1/2 inch			Sensor size: 1/3 inch		
		Length	Width	Diagonal	Length	Width	Diagonal	Length	Width	Diagonal
SE-65ST08	0.8x	6.65	8.98	11.16	6.00	8.00	10.00	4.50	6.00	7.50
SE-65ST10	1.0x	5.32	7.18	8.93	4.80	6.40	8.00	3.60	4.80	6.00
SE-65ST15	1.5x	3.55	4.78	5.95	3.20	4.27	5.33	2.40	3.20	4.00
SE-65ST20	2.0x	2.66	3.59	4.47	2.40	3.20	4.00	1.80	2.40	3.00
SE-65ST40	4.0x	1.33	1.80	2.23	1.20	1.60	2.00	0.90	1.20	1.50
SE-110ST08	0.8x	6.65	8.97	11.17	6.00	8.00	10.00	4.50	6.00	7.50
SE-110ST10	1.0x	5.32	7.18	8.93	4.80	6.40	8.00	3.60	4.80	6.00
SE-110ST15	1.5x	3.55	4.78	5.95	3.20	4.27	5.33	2.40	3.20	4.00
SE-110ST20	2.0x	2.66	3.59	4.47	2.40	3.20	4.00	1.80	2.40	3.00
SE-110ST40	4.0x	1.33	1.79	2.23	1.20	1.60	2.00	0.90	1.20	1.50

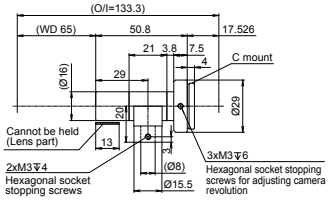
For other fields of vision, refer to the field of vision chart in the Technical Guide. ► P.248

Dimensions (mm)

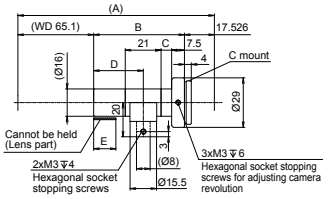
SE-65VT08/SE-65VT10 (Coaxial)



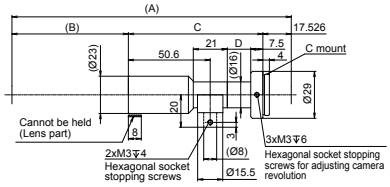
SE-65VT15 (Coaxial)



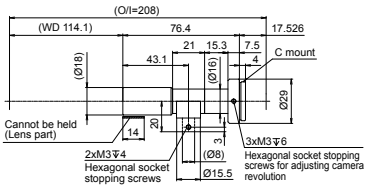
SE-65VT20/SE-65VT40 (Coaxial)



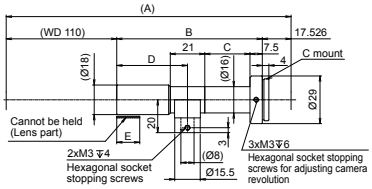
SE-110VT08/SE-110VT10 (Coaxial)



SE-110VT15 (Coaxial)

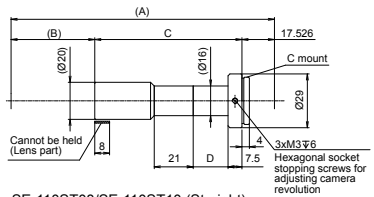


SE-110VT20/SE-110VT40 (Coaxial)

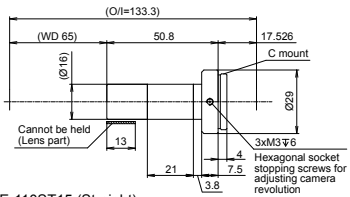


		SE-65VT08	SE-65VT10	SE-65VT20	SE-65VT40	SE-110VT08	SE-110VT10	SE-110VT20	SE-110VT40
Dimensions chart	A	O/I=164.6	O/I=172.1	O/I=135.8	O/I=147	O/I=211	O/I=213.9	O/I=216.1	O/I=212.5
	B	WD 67.7	WD 65.2	53.2	64.4	WD 110.4	WD 110	88.6	84.9
	C	79.4	89.4	6.2	18.5	83.1	86.3	27.5	30.4
	D	18.8	28.8	29	27.9	14.5	17.7	43.1	36.5
	E	–	–	13	11	–	–	14	11

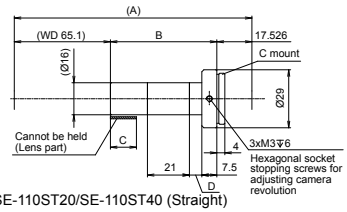
SE-65ST08/SE-65ST10 (Straight)



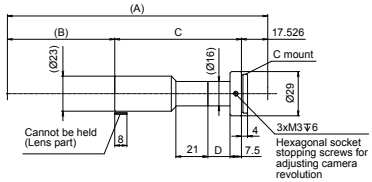
SE-65ST15 (Straight)



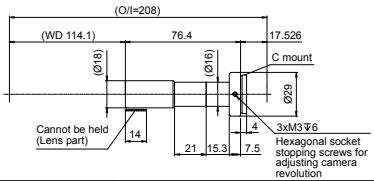
SE-65ST20/SE-65ST40 (Straight)



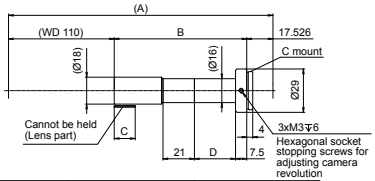
SE-110ST08/SE-110ST10 (Straight)



SE-110ST15 (Straight)



SE-110ST20/SE-110ST40 (Straight)



		SE-65ST08	SE-65ST10	SE-65ST20	SE-65ST40	SE-110ST08	SE-110ST10	SE-110ST20	SE-110ST40
Dimensions chart	A	O/I=164.6	O/I=172.1	O/I=135.8	O/I=147	O/I=211	O/I=213.9	O/I=216.1	O/I=212.5
	B	WD 67.7	WD 65.2	53.2	64.4	WD 110.4	WD 110	88.6	84.9
	C	79.4	89.4	13	11	83.1	86.3	14	11
	D	18.8	28.8	6.2	18.5	14.5	17.7	27.5	30.4

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Macro Lenses
SE-16/SE-18 series

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Original macro lenses that achieve both "high performance" and "low cost"

SE-16 series

Straight type
0.5x to 2x

Coaxial type
0.5x to 2x

Full set

Model: SE-16MS
Set details:
- Straight mount
- Coaxial mount
- Lens unit
- Lens tube (Short)
- Lens tube (Long)

SE-18 series

Straight type
2x to 6x

Coaxial type
2x to 6x

Full set

Model: SE-18MS
Set details:
- Straight lens unit
- Coaxial lens unit
- C mounted ring
- 4x ring
- 6x ring

SE-16/SE-18 series specifications

Coaxial type

Model name	SE-16VM05	SE-16VM1	SE-16VM2	SE-18VM2	SE-18VM4	SE-18VM6
Optical magnification	0.5x	1.0x	2.0x	2.0x	4.0x	6.0x
WD	107 mm	67 mm	47 mm	114±1 mm	110±1 mm	109±1 mm
Depth of field *1	1,900 µm	620 µm	230 µm	380 µm	190 µm	130 µm
Resolution *2	8 µm	5.2 µm	3.9 µm	6.3 µm		
NA	0.042	0.065	0.087	0.053		
Actual F-number (Fe)	5.92	7.88	11.7	18.9	37.7	56.6
TV distortion	-0.026569%	-0.014059%	-0.005588%	-0.058268%	-0.073489%	-0.031328%
Weight	41.9 g	46.3 g	55.8 g	50 g	60 g	65 g
Mount	C mount			C mount		
Maximum applicable image size	1/2 inch			2/3 inch		
Physical distance (O/I)	179.9 mm	160 mm	180.6 mm	201.4 mm	227.1 mm	256.7 mm

*1: The depth of field is a value calculated using 40 µm as the permissible circle of confusion.
*2: The resolution is a value calculated using a 550 nm wavelength. The specifications above are values based on the optical design. Differences between individual devices may occur due to assembly accuracy, etc.

Straight type

Model name	SE-16SM05	SE-16SM1	SE-16SM2	SE-18SM2	SE-18SM4	SE-18SM6
Optical magnification	0.5x	1.0x	2.0x	2.0x	4.0x	6.0x
WD	107 mm	67 mm	47 mm	114±1 mm	110±1 mm	109±1 mm
Depth of field *1	1,900 µm	620 µm	230 µm	380 µm	190 µm	130 µm
Resolution *2	8 µm	5.2 µm	3.9 µm	6.3 µm		
NA	0.042	0.065	0.087	0.053		
Actual F-number (Fe)	5.93	7.74	11.5	18.9	37.7	56.6
TV distortion	-0.001335%	-0.000957%	-0.000232%	-0.058268%	-0.073489%	-0.031328%
Weight	29.6 g	34 g	43.5 g	40 g	50 g	55 g
Mount	C mount			C mount		
Maximum applicable image size	1/2 inch			2/3 inch		
Physical distance (O/I)	179.9 mm	160 mm	180.6 mm	199.1 mm	224.8 mm	254.4 mm

*1: The depth of field is a value calculated using 40 µm as the permissible circle of confusion.
*2: The resolution is a value calculated using a 550 nm wavelength. The specifications above are values based on the optical design. Differences between individual devices may occur due to assembly accuracy, etc.

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Field of vision chart

* These values are for reference.

Coaxial type

Model name	Optical magnification	Sensor size: 2/3 inch			Sensor size: 1/2 inch			Sensor size: 1/3 inch		
		Length	Width	Diagonal	Length	Width	Diagonal	Length	Width	Diagonal
SE-16VM05	0.5x	13.20	17.60	22.00	9.60	12.80	16.00	7.20	9.60	12.00
SE-16VM1	1.0x	6.60	8.80	11.00	4.80	6.40	8.00	3.60	4.80	6.00
SE-16VM05+SE-EX2 (2x rear converter)										
SE-16VM2	2.0x	3.30	4.40	5.50	2.40	3.20	4.00	1.80	2.40	3.00
SE-18VM2										
SE-16VM1+SE-EX2 (2x rear converter)										
SE-18VM4	4.0x	1.65	2.20	2.75	1.20	1.60	2.00	0.90	1.20	1.50
SE-16VM2+SE-EX2 (2x rear converter)										
SE-18VM2+SE-EX2 (2x rear converter)										
SE-18VM6	6.0x	1.10	1.47	1.83	0.80	1.07	1.33	0.60	0.80	1.00

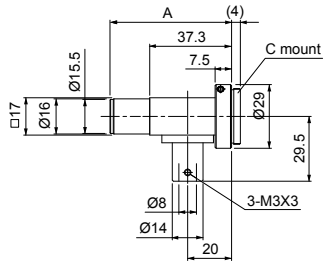
Straight type

Model name	Optical magnification	Sensor size: 2/3 inch			Sensor size: 1/2 inch			Sensor size: 1/3 inch		
		Length	Width	Diagonal	Length	Width	Diagonal	Length	Width	Diagonal
SE-16SM05	0.5x	13.20	17.60	22.00	9.60	12.80	16.00	7.20	9.60	12.00
SE-16SM1	1.0x	6.60	8.80	11.00	4.80	6.40	8.00	3.60	4.80	6.00
SE-16SM05+SE-EX2 (2x rear converter)										
SE-16SM2	2.0x	3.30	4.40	5.50	2.40	3.20	4.00	1.80	2.40	3.00
SE-18SM2										
SE-16SM1+SE-EX2 (2x rear converter)										
SE-18SM4	4.0x	1.65	2.20	2.75	1.20	1.60	2.00	0.90	1.20	1.50
SE-16SM2+SE-EX2 (2x rear converter)										
SE-18SM2+SE-EX2 (2x rear converter)										
SE-18SM6	6.0x	1.10	1.47	1.83	0.80	1.07	1.33	0.60	0.80	1.00

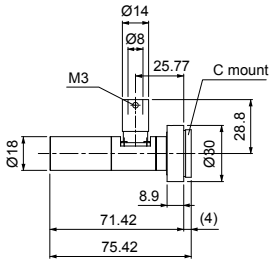
For other fields of vision, refer to the field of vision chart in the Technical Guide. ► P.248

Dimensions (mm)

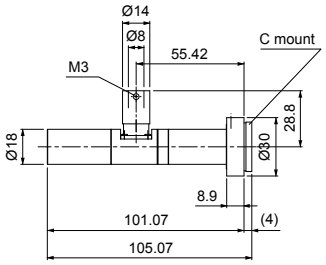
SE-16 (Coaxial)



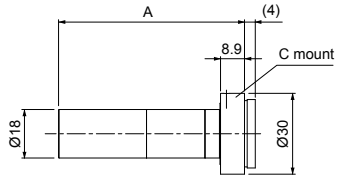
SE-18VM2 (Coaxial)



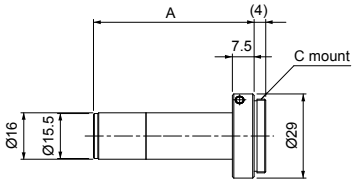
SE-18VM4 (Coaxial)



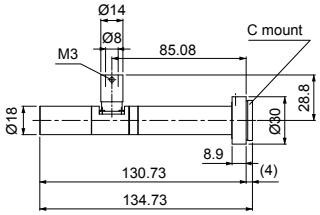
SE-16 (Straight)



SE-18 (Straight)



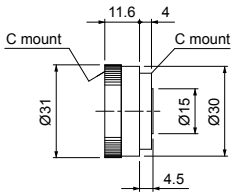
SE-18VM6 (Coaxial)



	Model name	A
Coaxial	SE-16VM05	55.4
	SE-16VM1	75.5
	SE-16VM2	116.1
Straight	SE-16SM05	55.4
	SE-16SM1	75.5
	SE-16SM2	116.1
	SE-18SM2	69.1
	SE-18SM4	98.8
	SE-18SM6	128.4

Options

SE-EX2 (2x rear converter)



* Mount between the lens and camera to double the magnification. Be aware this will reduce the brightness and resolution.

INDEX

Guide to Selecting Control Units According to Functions

You can easily find and select the Control Unit you need.

* Excluding the PSCC(A) series and the PSB3-30024.

PD3 series — Refer to P. 189 for details.
PD2 series — Refer to P. 195 for details.
PSB series — Refer to P. 199 for details.
CC-ST-1024 — Refer to P. 209 for details.
POD series — Refer to P. 201 for details.
PTU2 series — Refer to P. 205 for details.
PB-2430-1 — Refer to P. 207 for details.
BB series — Refer to P. 211 for details.

★ Control Units recommended by CCS

▶ Search by power supply

AC input
- ★ **PD3** series
- **PD2** series
- **PSB** series

DC input
- ★ **PD3** series
- **CC-ST-1024**
- **PB-2430-1**
- **BB** series

▶ Search by output voltage

24 V output
- ★ **PD3** series
- **PD2** series
- **PSB** series
- **CC-ST-1024**
- **PB-2430-1**
- **BB** series

12 V output
- **PD2** series
- **PSB** series
- **BB** series

▶ Search by capacity

* Actual capacity varies depending on the product. Refer to the corresponding product specifications for details.

- 100 W — **PD3** series
- 50 W — ★ **PD3** series, **PD2** series
- 30 W — ★ **PD3** series, **PD2** series, **PSB** series, **PB-2430-1**, **BB** series
- 10 W — ★ **CC-ST-1024**, **PD2** series, **PSB** series
- 5 W — **PSB** series

(Capacity)

▶ Search by number of channels

- 1 2 3 4 5 6 7 8 … 16 — **BB** series
- 1 2 3 4 5 6 7 8 — ★ **PD3** series, **BB** series
- 1 2 3 4 — ★ **PD3** series, **PD2** series, **BB** series
- 1 — ★ **CC-ST-1024**, **PSB** series, **PB-2430-1**, **BB** series

(No. of channels)

▶ Search by external control

If you want prompt control by receiving set values in a batch:

Parallel communication
- ★ **PD3** series
- **PD2** series
- **BB** series

If you want to individually manage multi-drop wiring:

Serial communication EIA-485
- **PD3** series

If you want to individually manage IP addresses from an upper level network:

Ethernet communication TCP/IP UDP/IP
- **PD3** series

▶ Search by intensity control method

If you want to digitally set intensity control:

PWM control
- ★ **PD3** series
- **PD2** series
- **CC-ST-1024**
- **BB** series

If you want to use with a high-speed shutter of 1/4,000 or higher:

Variable voltage control
- **PSB** series
- **PB-2430-1**

▶ Search by ON/OFF control

Use when continuously emitting light:

Continuous lighting
- ★ **PD3** series
- **PD2** series
- **PSB** series
- **CC-ST-1024**
- **PB-2430-1**
- **BB** series

Use for emitting light only when necessary:

ON/OFF lighting
- ★ **PD3** series
- **PD2** series
- **CC-ST-1024**
- **BB** series

Use for emitting light momentarily:

Strobe lighting

If you want to emit light brighter than ON/OFF lighting or strobe lighting without overdrive:

No overdrive
- ★ **PD3** series
- **CC-ST-1024**
- **BB** series

(Continuous emitting type)

Overdrive specifications

Light emission is made even brighter by increasing the output to Light Units for a short time.
- ★ **POD** series
- **PTU2** series
- **BB** series

(Strobe emitting type)

Guide to Selecting Control Units for the Spot Light HLV2 Series

PD3 series

Refer to P. 189 for details.

PJ series

Refer to P. 215 for details.

CC-PJ-0707

Refer to P. 217 for details.

Search by output voltage

Selection is not necessary.

Search by capacity

Selection is not necessary because the capacity of the matching Control Unit is not exceeded.
However, you cannot connect multiple Light Units using a branch cable.

* If you are connecting any Light Units of the PD3 series other than the Spot Light HLV2 series, be sure to check that the total power consumption of the Light Unit is within the output power of the Control Unit before using.

★Control Units recommended by CCS

*1 The PD3-3024-3 and PD3-5024-3 series are not applicable to the Spot Light HLV2 series.

▶ Search by power supply

AC input
★**PD3** series*1
PJ series

DC input
★**PD3** series*1
PJ series
CC-PJ-0707

▶ Search by number of channels

1 2 3 4 5 6 7 8 ★**PD3** series*1

1 2 3 ★**PJ** series

1 ★**CC-PJ-0707**

(No. of channels)

▶ Search by external control

If you want to individually manage IP addresses from an upper level network:

Ethernet communication
TCP/IP UDP/IP
★**PD3** series*1

If you want prompt control by receiving set values in a batch:

Parallel communication
★**PD3** series*1

If you want to control intensity by analog voltage:

Analog input
★**PJ** series

If you want to individually manage multi-drop wiring:

Serial communication
EIA-485
★**PD3** series*1

▶ Search by intensity control method

Variable-current control
★**PD3** series*1
PJ series
CC-PJ-0707

▶ Search by ON/OFF control

Use when continuously emitting light:

Continuous lighting
★**PD3** series*1
PJ series
CC-PJ-0707

Use for emitting light only when necessary:

ON/OFF lighting
★**PD3** series*1
PJ series
CC-PJ-0707

Use for emitting light momentarily:

Strobe lighting
★**CC-PJ-0707**
* No overdrive

Refer to the Technical Guide on P. 246 for details regarding the technical structure and meanings of terminology for PWM, variable voltage and other types of control.

List of Control Unit Specifications

INDEX

Digital Control Units　Analog Control Units　* Excluding the PJ Series, CC-PJ-0707, and STU-3000.

Model name	PD3-3024-3-PI	PD3-3024-3-SI	PD3-3024-3-EI	PD3-5024-4-PI	PD3-5024-4-SI	PD3-5024-4-EI	PD3-10024-8-PI	PD3-10024-8-SI	PD3-10024-8-EI	PD3-3024-3-PT	PD3-3024-3-ET	PD3-5024-3-PT	PD3-5024-3-ET
Output voltage	24 V												
Output power	28 W			46 W			95 W			28 W		48 W	
No. of channels	3			4			8			3			
Lighting method	Continuous/Strobe lighting												
Intensity control method	PWM control/Lighting time control												
PWM frequency	125 kHz												
Intensity value	256 steps												
Input voltage	100 to 240 VAC						100 to 240 VAC			24 VDC			
Frequency	50/60 Hz						50/60Hz			-			
Power consumption	78 VA			70 VA			130 VA			32 W		52 W	
Parallel communication	○	–	–	○	–	–	○	–	–	○	–	○	–
EIA-485 communication	–	○	–	–	○	–	–	○	–	–	–	–	–
Ethernet	–	–	○	–	–	○	–	–	○	–	○	–	○
Analog input	–	–	–	–	–	–	–	–	–	–	–	–	–
External intensity control	○	○	○	○	○	○	○	○	○	○	○	○	○
ON/OFF lighting	○	○	○	○	○	○	○	○	○	○	○	○	○
Strobe lighting	○ (No overdrive)												
Lighting time	40 µs / 80 µs / 120 µs / 200 µs / 600 µs / 1 ms / 4 ms / 10 ms / 20 ms / 40 ms												
Lighting delay time	10 µs max.			20 µs max.						10 µs max.			
CE marking	○												
Weight	600 g			1.2 kg			1.5 kg			400 g			
Cooling method	Natural air cooling			Forced air cooling						Natural air cooling			
Mounting method	Bottom and DIN rail mounting												
Page where described	P.189												

Model name	PD3-5024-4-PT	PD3-5024-4-ET	PD2-1024	PD2-1012	PD2-3024	PD2-3024-2	PD2-3024-4	PD2-3024-8	PD2-5024	PD2-3012	PD2-3012-2	PD2-3012-4	PD2-3012-8	PD2-5012
Output voltage	24 V			12 V	24 V					12 V				
Output power	46 W		9 W	9.5 W	28 W		27 W	25 W	46 W	28 W		27 W	25 W	46 W
No. of channels	4		1		2	4	8	1		2	4	8	1	
Lighting method	Continuous/ Strobe lighting		Continuous lighting											
Intensity control method	PWM control/ Lighting time control		PWM control											
PWM frequency	125 kHz		62.5 kHz											
Intensity value	256 steps													
Input voltage	24 VDC		100 to 120 VAC		100 to 240 VAC									
Frequency	-		50/60 Hz											
Power consumption	52 W		27 VA		78 VA				122 VA	78 VA				122 VA
Parallel communication	○	–	○	○	○	○	○	○	○	○	○	○	○	○
EIA-485 communication	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethernet	–	○	–	–	–	–	–	–	–	–	–	–	–	–
Analog input	–	–	–	–	–	–	–	–	–	–	–	–	–	–
External intensity control	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ON/OFF lighting	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Strobe lighting	○ (No overdrive)		–										–	–
Lighting time	40 µs / 80 µs / 120 µs / 200 µs / 600 µs /1 ms / 4 ms / 10 ms/ 20 ms / 40 ms		–											
Lighting delay time	20 µs max.		–											
CE marking	○		– (Not subject to CE)		○									
Weight	850 g		700 g		1.1 kg		1.2 kg	1.5 kg	1.3 kg	1.1 kg		1.2 kg	1.5 kg	1.3 kg
Cooling method	Forced air cooling		Natural air cooling		Natural air cooling				Forced air cooling	Natural air cooling				Forced air cooling
Mounting method	Bottom and DIN rail mounting		Bottom mounting		Bottom and DIN rail mounting									
Page where described	P.189		P.195											

Model name	PB-2430-1	PSB-524V	PSB-1024VB	PSB-3024VB	PSB-1024V-WW	PSB-512V	PSB-1012VB	PSB-3012VB	PSB-1012V-WW	POD-5024-2-PEI	PTU2-3012	PTU2-3024
Output voltage	24 V					12 V				24 to 48 V (Overdrive mode)	18 V	48 V
Output power	24 W	5 W	10 W	30 W	10 W	5 W	10 W	30 W	10 W	Refer to the specifications table on p.203. *1	27 W	
No. of channels	1									2		
Lighting method	Continuous lighting									Strobe lighting/Continuous lighting	Strobe lighting	
Intensity control method	Variable voltage control									Variable voltage control/ PWM control	Lighting time control	
PWM frequency	–									125 kHz	–	
Intensity value	Stepless									512 steps	10% to 100% (10% steps)	
Input voltage	24 VDC	100 to 120 VAC			100 to 240 VAC	100 to 120 VAC			100 to 240 VAC			
Frequency	–	50/60 Hz										
Power consumption	30 W	15 VA	27 VA	78 VA	27 VA	15 VA	27 VA	78 VA	27 VA	65 VA	78 VA	
Parallel communication	–	–	–	–	–	–	–	–	–	○	○	○
EIA-485 communication	–	–	–	–	–	–	–	–	–	–	–	–
Ethernet	–	–	–	–	–	–	–	–	–	○	–	–
Analog input	–	–	–	–	–	–	–	–	–	–	–	–
External intensity control	–	–	–	–	–	–	–	–	–	○	○	○
ON/OFF lighting	–	–	–	–	–	–	–	–	–	○	–	–
Strobe lighting	–	–	–	–	–	–	–	–	–	○ (With overdrive)		
Lighting time	–									1 to 1,000 µs (1 µs steps)	10 to 990 µs (10 µs steps) (Can only be set by using the front switch.)	
Lighting delay time	–									0 to 1,000 µs (1 µs steps)	15 µs max.	
CE marking	○	– (Not subject to CE)			○	– (Not subject to CE)			○			
Weight	270 g	420 g	470 g	700 g	470 g	420 g	470 g	700 g	470 g	1.5 kg	1.2 kg	
Cooling method	Natural air cooling									Forced air cooling	Natural air cooling	
Mounting method	DIN rail mounting	Bottom mounting										
Page where described	P.207	P.199								P.201	P.205	

*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

Model name	CC-ST-1024	BB-V24P30-M	BB-V24P30-S	BB-V12P30-M	BB-V12P30-S	BB-V12S30-M	BB-V12S30-S	BB-V24S30-M	BB-V24S30-S	PSCC-30048(A)	PSCC-60048(A)	PSB3-30024
Output voltage	24 V			12 V		18 V		48 V		43 V		24 V
Output power	10 W	30 W								300 W	600 W	300 W
No. of channels	1											
Lighting method	Continuous/Strobe lighting					Strobe lighting				Continuous lighting		
Intensity control method	PWM control/Lighting time control					Lighting time control				Variable current control		Variable voltage control
PWM frequency	100 kHz	62.5 kHz (initial value)				–						
Intensity value	100 steps	256 steps (initial value)				–				256 or 1,000 steps		256 steps
Input voltage	24 VDC									100 to 240 VAC		
Frequency	–									50/60 Hz		
Power consumption	11 W	42 W				16 W (average power consumption) 72 W (peak power consumption)		16 W (average power consumption) 26 W (peak power consumption)		360 VA	750 VA	410 VA
Parallel communication	–	○ (Using an interface unit)								○	○	○
EIA-485 communication	–	–	–	–	–	–	–	–	–	○	○	○
Ethernet	–	–	–	–	–	–	–	–	–	○	○	–
Analog input	–	–	–	–	–	–	–	–	–	–	–	○
External intensity control	–	○	○	○	○	–	–	–	–	○	○	○
ON/OFF lighting	○	○	○	○	○	–	–	–	–	○	○	○
Strobe lighting	○ (No overdrive)					○ (With overdrive)				–		
Lighting time	50 µs/100 µs/ 250 µs/500 s/ 1 ms/4 ms/ 10 ms/40 ms	0.1 to 100 ms (Can only be set by using the button on the front of the master unit.)				0.001 to 1 ms				–		
Lighting delay time	3 µs max.					1 µs to 1,000 µs				–		
CE marking	○											
Weight	80 g	350 g				400 g	350 g	400 g		3.1 kg	7.0 kg	2.3 kg
Cooling method	Natural air cooling									Forced air cooling		
Mounting method	DIN rail mounting									Bottom mounting		
Page where described	P.209	P.211								P.219		P.221

* Options include a type for the PSB series where the intensity knob can be locked.
* For the BB series, you can select from the following lighting frequencies: 62.5 kHz (intensity values in 256 steps), 125 kHz (intensity values in 128 steps), 250 kHz (intensity values in 64 steps), and 500 kHz (intensity values in 32 steps).

Digital Control Units
PD3 series

Refer to our website for product details.
CCS PD3 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Select digital Control Units matching your network

500 PWM kHz Custom orders accepted
Ethernet Enabled

CE Compliant

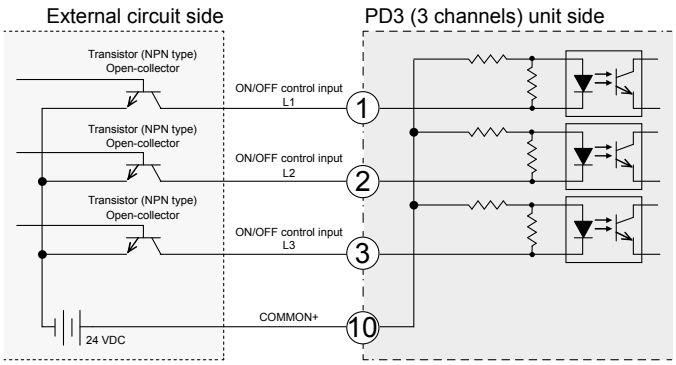
The supplied AC cord is for use with 100 to 120 VAC. If you would like to use the Control Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

Characteristics

- Each single unit is compatible with continuous, ON/OFF and strobe lighting.
- Digital display makes it easy to check settings.
  * Spot Light HLV2 series cannot emit strobe. (Spot Light HLV2 series Product Page ▶ P. 109)
- Ethernet-compatible with a selection of three types of external controls.
- DIN rail installation is standard.
- There are four types of capacity: 3 channels/28 W*1, 3 channels/48 W*1*2, 4 channels/46 W*3, and 8 channels/95 W*3.
  *1: Can be connected only with 24 V Light. *2: Lineup includes only DC-input Control Units.
  *3: Can be connected with both 24 V Light and Spot Light HLV2 series.
- The parallel type has the fastest switching for settings. Perform high-speed control through batch transmission.
- The Ethernet type supports standard protocols TCP/IP and UDP/IP. Pursuing even more convenience.
- The EIA-485 type can individually manage units using multi-drop wiring. Can manage up to 4 units.

Example connection * Refer to the “Instruction Guide” for details.

Example connection of external trigger signal



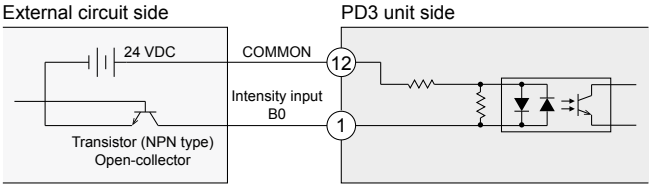
Connection specifications				
Rated input voltage	Maximum input voltage	ON voltage/ON current	OFF voltage/OFF current	Input impedance
24 VDC	26.4 VDC	14.4 VDC or more/ 3 mA max.	5 VDC max./ 1 mA max.	12 kΩ (per terminal)

Trigger logical setting switch	Input signal	Photocoupler	ON/OFF mode	Strobe mode
HIGH	HIGH	OFF	LED ON	LED is ON for the specified time.
	LOW	ON	LED OFF	No change
LOW	HIGH	OFF	LED OFF	No change
	LOW	ON	LED ON	LED is ON for the specified time.

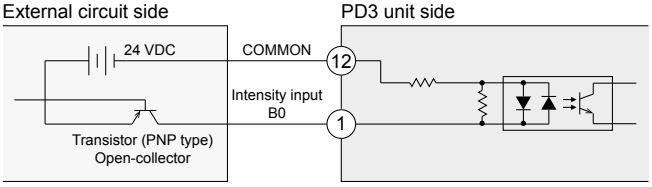
We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Example connections of external signal (parallel type)

Sink type



Source type



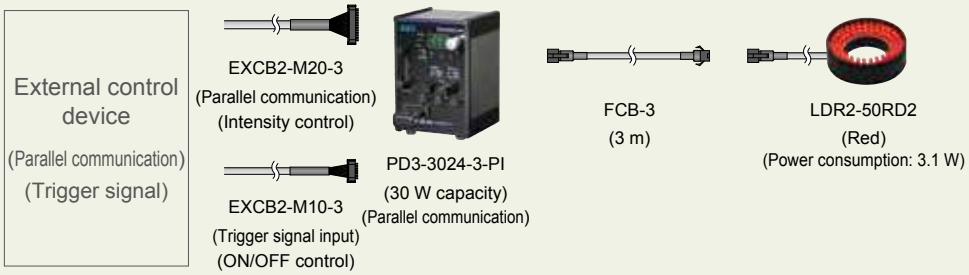
Connection specifications				
Rated input voltage	Maximum input voltage	ON voltage/ ON current	OFF voltage/ OFF current	Input impedance
24 VDC	26.4 VDC	14.4 VDC or more/ 3 mA max.	5 VDC max./ 1 mA max.	12 kΩ (per terminal)

	Input signal	Photocoupler	Data
Sink type	HIGH	OFF	1
	LOW	ON	0
Source type	HIGH	ON	0
	LOW	OFF	1

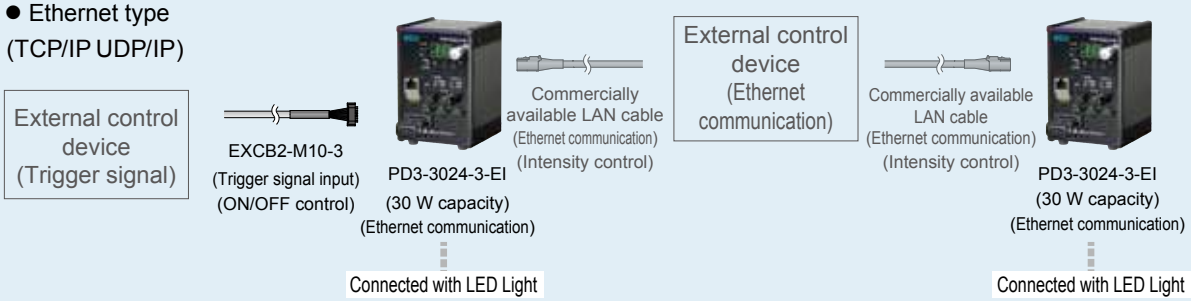
Example system configuration

Example:
External control device — **External control cables** — **Control Unit** — **Extension cables** — **LED Light**

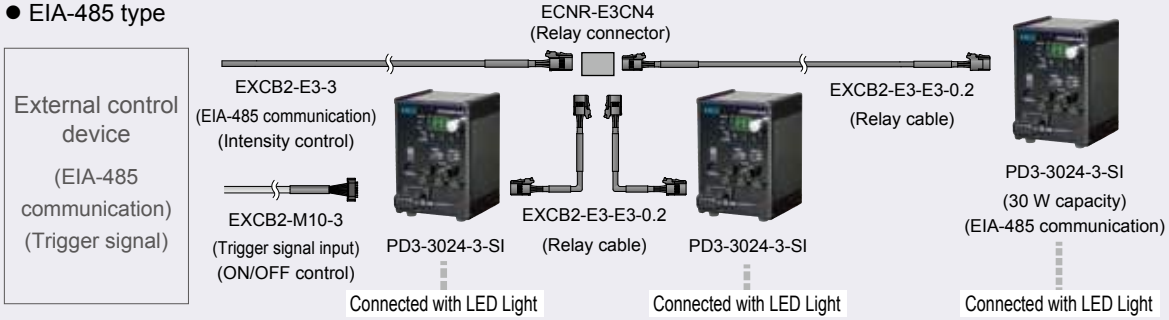
● Parallel type



● Ethernet type
(TCP/IP UDP/IP)



● EIA-485 type



* Refer to the material "Connecting EIA-485 Communications Cables" on our website for information on multi-drop wiring connections. You can download this information from the product website page.

PD3 series

Refer to our website for product details.

CCS PD3 ▶ Search

Use a search engine.

You can also use your smartphone or cell phone.

Common specifications: Parallel types

AC input: PD3-3024-3-PI/PD3-5024-4-PI/PD3-10024-8-PI
DC input: PD3-3024-3-PT/PD3-5024-3-PT/PD3-5024-4-PT

Model name	PD3-3024-3-PI	PD3-5024-4-PI	PD3-10024-8-PI	PD3-3024-3-PT	PD3-5024-3-PT	PD3-5024-4-PT
Input voltage	100 to 240 VAC (+10% -15%)			24 VDC (21.6 to 26.4 V)		
Lighting method	Continuous/Strobe lighting					
Drive method	Constant-voltage system	24 V LIGHT: Constant-voltage system HLV LIGHT: Constant-current system		Constant-voltage system		24 V LIGHT: Constant-voltage system HLV LIGHT: Constant-current system
Intensity control method	PWM control and lighting time control	24 V LIGHT: PWM control and lighting time control HLV LIGHT: Variable-current control		PWM control and lighting time control		24 V LIGHT: PWM control and lighting time control HLV LIGHT: Variable-current control
No. of channels	3 channels	4 channels	8 channels	3 channels		4 channels
Applicable Light Unit (rated)	Light Units with 24 VDC input Total for 3 channels: 28 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 4 channels: 46 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 8 channels: 95 W (EL connector: one 95 W connector)	Light Units with 24 VDC input Total for 3 channels: 28 W	Light Units with 24 VDC input Total for 3 channels: 48 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 4 channels: 46 W
PWM frequency	125 kHz					
Error detection display	"OCP" displayed on front digital display: Overcurrent error	"OCP" displayed on front digital display: Overcurrent error "EFN" display: Fan stop error "EID" display: ID error (HLV2 series only)		"OCP" displayed on front digital display: Overcurrent error		"OCP" displayed on front digital display: Overcurrent error "EFN" display: Fan stop error "EID" display: ID error (HLV2 series only)
Overcurrent protection	Operates at 107% of the output current. Reset by pressing and holding the setting switch for 1 sec., or turning the power off and then on again. * Do not create an intentional short circuit between the positive (+) and negative (-) outputs.					
Power consumption (typ.)	78 VA	70 VA	130 VA	32 W	52 W	
Frequency	50/60 Hz			–		
Output voltage (rated)	24 VDC					
Intensity setting	Manual: 256-step using the front setting switch					
	External: 8-bit input (B0 to B7), write pulse (BRTWR), and channel selection (CHSEL0 to CHSEL2)					
ON/OFF setting	External trigger input					
Lighting mode setting	Manual: 11-step using the front setting switch					
	External: 4-bit input (M0 to M3), write pulse (TRGWR), and channel selection (CHSEL0 to CHSEL2)					
Error detection output	NPN Transistor output between pins 19 (OC) and 20 (OE) of the external control connector Normal operation: Open, Overcurrent output detected: Closed					
External control connector	Trigger input: MIL connector, 10-pin					
	Intensity/Lighting mode setting: MIL connector, 20-pin					
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)					
Cooling method	Natural air cooling	Forced air cooling		Natural air cooling		Forced air cooling
CE marking	Safety standard: EN61010-1 compliant, EMC standard: EN61326-1 Class A compliant			EMC standard: EN61326-1 Class A compliant		
Material/Surface processing	Material: aluminum and resin, Surface processing: blue alumite					
Weight	600 g max.	1,200 g max.	1,500 g max.	400 g max.		850 g max.
Accessories	3-prong AC cord with ground terminal (2 m) x 1, Instruction Guide x 1, Base Brackets x 1 set (PD3-5024-4-PI/10024-8-PI)			Instruction Guide x 1, Base Brackets x 1 set (PD3-5024-4-PT)		

Common specifications: Ethernet type

AC input: PD3-3024-3-EI/PD3-5024-4-EI/PD3-10024-8-EI
DC input: PD3-3024-3-ET/PD3-5024-3-ET/PD3-5024-4-ET

Model name	PD3-3024-3-EI	PD3-5024-4-EI	PD3-10024-8-EI	PD3-3024-3-ET	PD3-5024-3-ET	PD3-5024-4-ET
Input voltage (rated)	100 to 240 VAC (+10% -15%)			24 VDC (21.6 to 26.4 V)		
Lighting method	Continuous/Strobe lighting					
Drive method	Constant-voltage system	24 V LIGHT: Constant-voltage system HLV LIGHT: Constant-current system		Constant-voltage system		24 V LIGHT: Constant-voltage system HLV LIGHT: Constant-current system
Intensity control method	PWM control and lighting time control	24 V LIGHT: PWM control and lighting time control HLV LIGHT: Variable-current control		PWM control and lighting time control		24 V LIGHT: PWM control and lighting time control HLV LIGHT: Variable-current control
No. of channels	3 channels	4 channels	8 channels	3 channels		4 channels
Applicable Light Unit (rated)	Light Units with 24 VDC input Total for 3 channels: 28 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 4 channels: 46 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 8 channels: 95 W (EL connector: one 95 W connector)	Light Units with 24 VDC input Total for 3 channels: 28 W	Light Units with 24 VDC input Total for 3 channels: 48 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 4 channels: 46 W
PWM frequency	125 kHz					
Error detection display	"OCP" displayed on front digital display: Overcurrent error	"OCP" displayed on front digital display: Overcurrent error "EFN" display: Fan stop error "EID" display: ID error (HLV2 series only)		"OCP" displayed on front digital display: Overcurrent error		"OCP" displayed on front digital display: Overcurrent error "EFN" display: Fan stop error "EID" display: ID error (HLV2 series only)
Overcurrent protection	Operates at 107% of the output current. Reset by pressing and holding the setting switch for 1 sec., or turning the power off and then on again. * Do not create an intentional short circuit between the positive (+) and negative (-) outputs.					
Power consumption (typ.)	78 VA	70 VA	130 VA	32 W	52 W	
Frequency	50/60 Hz			–		
Output voltage (rated)	24 VDC					
Intensity setting	Manual: 256-step using the front setting switch					
	External: Command input via TCP/IP or UDP/IP communication					
ON/OFF setting	External trigger input or command input via TCP/IP or UDP/IP communication					
Lighting mode setting	Manual: 11-step using the front setting switch					
	External: Command input via TCP/IP or UDP/IP communication					
Error detection output	Command sent when overcurrent output is detected.					
External control connector	Trigger input: MIL connector, 10-pin					
	Intensity/Lighting mode setting: RJ-45 connector					
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)					
Cooling method	Natural air cooling	Forced air cooling		Natural air cooling		Forced air cooling
CE marking	Safety standard: EN61010-1 compliant, EMC standard: EN61326-1 Class A compliant			EMC standard: EN61326-1 Class A compliant		
Material/Surface processing	Material: Aluminum and resin, Surface processing: Blue alumite			Material: Aluminum and resin, Surface processing: Blue alumite		
Weight	600 g max.	1,200 g max.	1,500 g max.	400 g max.		850 g max.
Accessories	3-prong AC cord with ground terminal (2 m) x 1, Instruction Guide x 1, Base Brackets x 1 set (PD3-5024-4-EI/10024-8-EI)			Instruction Guide x 1, Base Brackets x 1 set (PD3-5024-4-ET)		

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

Common specifications: EIA-485 types

AC input: PD3-3024-3-SI/PD3-5024-4-SI/PD3-10024-8-SI

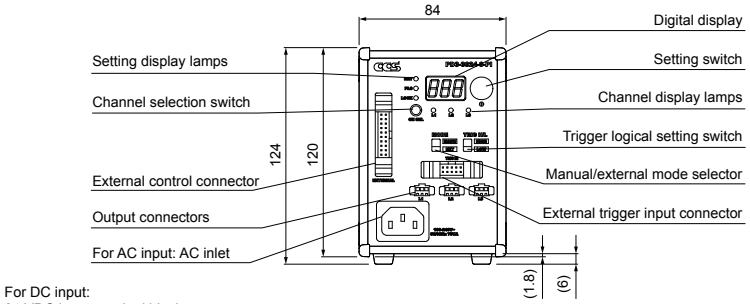
Model name	PD3-3024-3-SI	PD3-5024-4-SI	PD3-10024-8-SI
Input voltage (rated)	100 to 240 VAC (+10% -15%)		
Lighting method	Continuous/Strobe lighting		
Drive method	Constant-voltage system	24 V LIGHT: Constant-voltage system HLV LIGHT: Constant-current system	
Intensity control method	PWM control and lighting time control	24 V LIGHT: PWM control and lighting time control HLV LIGHT: Variable-current control	
No. of channels	3 channels	4 channels	8 channels
Applicable Light Unit (rated)	Light Units with 24 VDC input Total for 3 channels: 28 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 4 channels: 46 W	Light Units with 24 VDC input, HLV2 series (Spot Light) Total for 8 channels: 95 W (EL connector: one 95 W connector)
PWM frequency	125 kHz		
Error detection display	"OCP" displayed on front digital display: Overcurrent error	"OCP" displayed on front digital display: Overcurrent error "EFN" display: Fan stop error "EID" display: ID error (HLV2 series only)	
Overcurrent protection	Operates at 107% of the output current. Reset by pressing and holding the setting switch for 1 sec., or turning the power off and then on again. * Do not create an intentional short circuit between the positive (+) and negative (-) outputs.		
Power consumption (typ.)	78 VA	70 VA	130 VA
Frequency	50/60 Hz		
Output voltage (rated)	24 VDC		
Intensity setting	Manual: 256-step using the front setting switch		
	External: Command input via EIA-485 communication		
ON/OFF setting	External trigger input or command input via EIA-485 communication		
Lighting mode setting	Manual: 11-step using the front setting switch		
	External: Command input via EIA-485 communication		
Error detection output	Command sent when overcurrent output is detected.		
External control connector	Trigger input: MIL connector, 10-pin		
	Intensity/Lighting mode setting: e-CON connector, 3-pin		
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)		
Cooling method	Natural air cooling	Forced air cooling	
CE marking	Safety standard: EN61010-1 compliant, EMC standard: EN61326-1 Class A compliant		
Material/Surface processing	Material: Aluminum and resin, Surface processing: Blue alumite		
Weight	600 g max.	1,200 g max.	1,500 g max.
Accessories	3-prong AC cord with ground terminal (2 m) x 1, Instruction Guide x 1, Base Brackets x 1 set (PD3-5024-4-SI/10024-8-SI)		

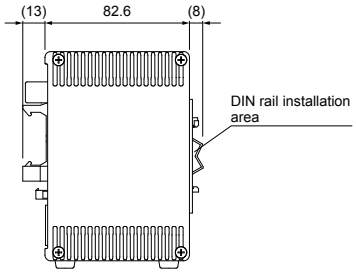
A unit with a PWM frequency of 500 kHz can be made for custom orders. Please contact your CCS sales representative for details.
For the effect on brightness due to differences in PWM frequency, refer to P. 243.

Dimensions (mm)

PD3-3024-3-PI/PD3-3024-3-EI/PD3-3024-3-SI/PD3-3024-3-PT/
PD3-3024-3-ET/PD5024-3-PT/PD5024-3-ET

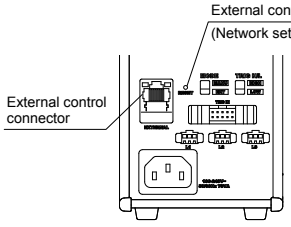
Parallel type



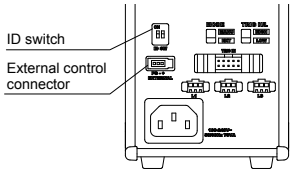


For DC input:
24 VDC input terminal block

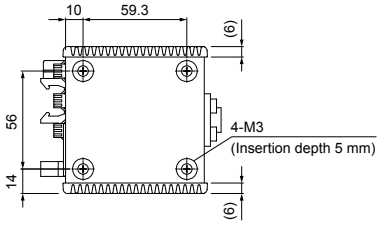
Ethernet type



EIA-485 type



* Ethernet/EIA-485 types have the same external dimensions as the parallel type.



PD3 series

Refer to our website for product details.

CCS PD3 ▶ Search

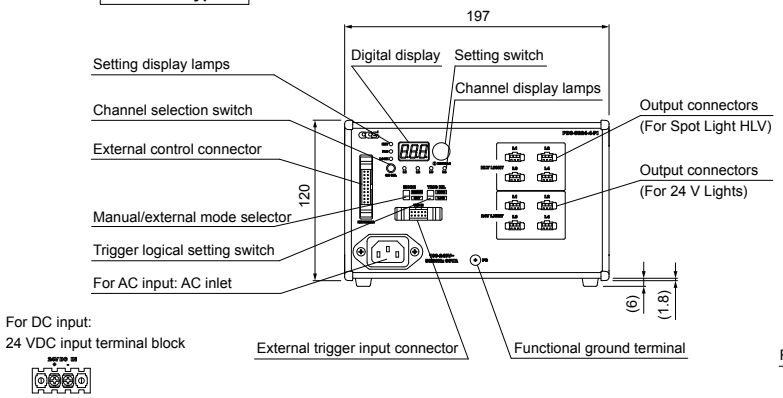
Use a search engine.

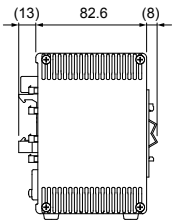
You can also use your smartphone or cell phone.

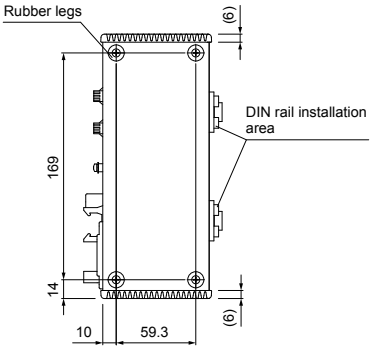
Dimensions (mm)

PD3-5024-4-PI/PD3-5024-4-EI/PD3-5024-4-SI/PD3-5024-4-PT/PD3-5024-4-ET

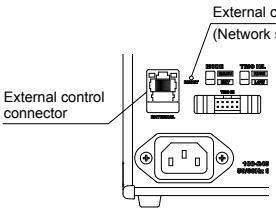
Parallel type



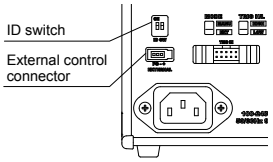




Ethernet type



EIA-485 type

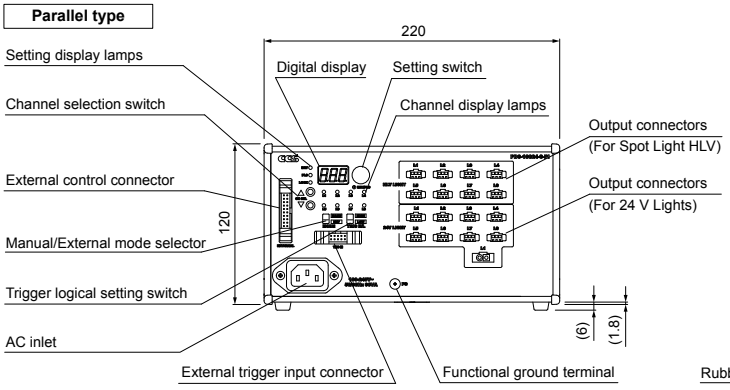


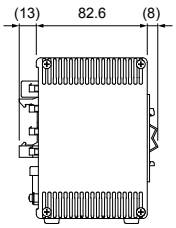
* Ethernet/EIA-485 types have the same external dimensions as the parallel type.

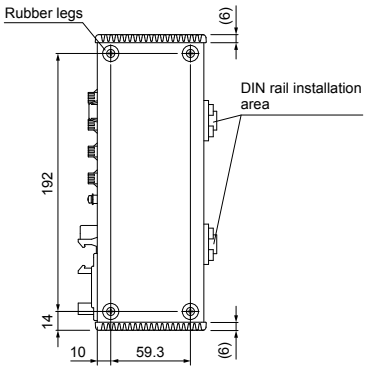
Dimensions (mm)

PD3-10024-8-PI/PD3-10024-8-EI/PD3-10024-8-SI

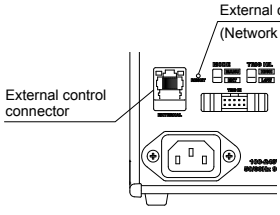
Parallel type



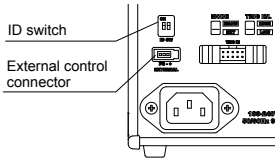




Ethernet type



EIA-485 type



* Ethernet/EIA-485 types have the same external dimensions as the parallel type.

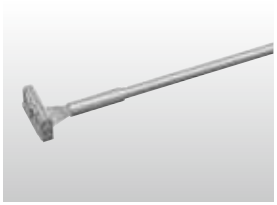
Options

External control cables

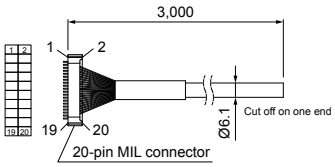
Dimensions (mm)

Parallel communication cable

Used for performing external control via parallel communication. You can select the channel, intensity setting and lighting mode (continuous, ON/OFF and strobe modes).



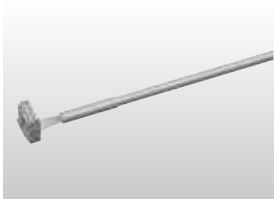
Model name: EXCB2-M20-3



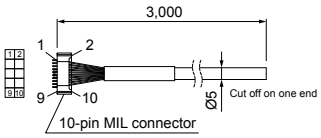
PIN No.	Line color	Marking	PIN No.	Line color	Marking
1	Orange	Black1	11	Orange	Black2
2	Orange	Red1	12	Orange	Red2
3	Gray	Black1	13	Gray	Black2
4	Gray	Red1	14	Gray	Red2
5	White	Black1	15	White	Black2
6	White	Red1	16	White	Red2
7	Yellow	Black1	17	Yellow	Black2
8	Yellow	Red1	18	Yellow	Red2
9	Pink	Black1	19	Pink	Black2
10	Pink	Red1	20	Pink	Red2

Trigger input cable

Cable through which external trigger signals are input by parallel bit method. Used when performing ON/OFF or strobe lighting using an external trigger signal.



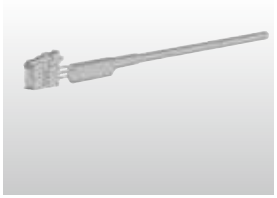
Model name: EXCB2-M10-3



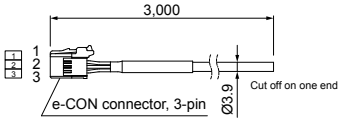
PIN No.	Line color	Marking
1	Orange	Black1
2	Orange	Red1
3	Gray	Black1
4	Gray	Red1
5	White	Black1
6	White	Red1
7	Yellow	Black1
8	Yellow	Red1
9	Pink	Black1
10	Pink	Red1

EIA-485 communication cable

Used for performing external control via EIA-485 communication. You can select the channel, intensity setting, ON/OFF setting and lighting mode (continuous, ON/OFF and strobe modes).



Model name: EXCB2-E3-3

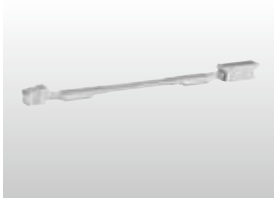


PIN No.	Line color	Embedded line color
1	Black	None
2	Black	White
3 (shielded)	Drain wire	None

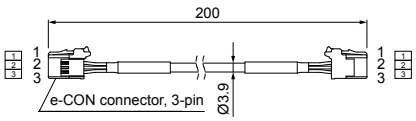
EIA-485 communication relay cable

Relay cable necessary if using with two or more PD3 series units connected for EIA-485 communication.

EIA-485 communication relay connector

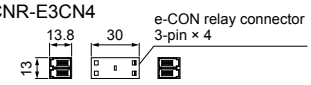


Model name: EXCB2-E3-E3-0.2



* Refer to the material "Connecting EIA-485 Communications Cables" on the CCS website for information on multi-drop wiring connections. You can download this information from the product website page.

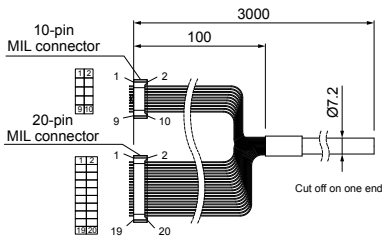
Model name: ECNR-E3CN4



Parallel communication/Trigger input branch cable

Branch cable that combines parallel communication and trigger input cables into a single cable.

Model name: EXCB2-M10M20-3



10-pin MIL connector

PIN No.	Line color	Marking
1	Orange	Black1
2	Orange	Red1
3	Gray	Black1
4	Gray	Red1
5	White	Black1
6	White	Red1
7	Yellow	Black1
8	Yellow	Red1
9	Pink	Black1
10	Pink	Red1

20-pin MIL connector

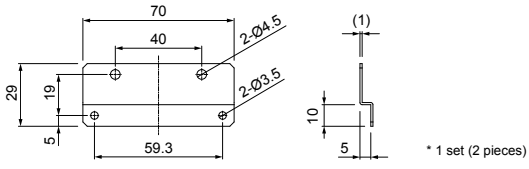
PIN No.	Line color	Marking
1	Orange	Black2
2	Orange	Red2
3	Gray	Black2
4	Gray	Red2
5	White	Black2
6	White	Red2
7	Yellow	Black2
8	Yellow	Red2
9	Pink	Black2
10	Pink	Red2
11	Orange	Black3
12	Orange	Red3
13	Gray	Black3
14	Gray	Red3
15	White	Black3
16	White	Red3
17	Yellow	Black3
18	Yellow	Red3
19	Pink	Black3
20	Pink	Red3

Base brackets

Bracket for securing PD3 series units to the floor, shelving and similar locations.

* Base Brackets are included with PD3-5024-4 and PD3-10024-8 models.

Model name: BK-PD3



* 1 set (2 pieces)

Digital Control Units
PD2 series

Refer to our website for product details.
CCS PD2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Intensity control to 256-step
Compatible with a wide range of uses


PD2-1012/PD2-1024


PD2-3012/PD2-3024


PD2-5012/PD2-5024


PD2-3012-2/PD2-3024-2


PD2-3012-4/PD2-3024-4


PD2-3012-8/PD2-3024-8

CE Compliant model(s)
PD2-3012/PD2-3024/PD2-5012/PD2-5024/PD2-3012-2/PD2-3024-2/
PD2-3012-4/PD2-3024-4/PD2-3012-8/PD2-3024-8

The supplied AC cord is for use with 100 to 120 VAC. If you would like to use the Control Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

PD3 series
PD2 series
STU-3000
PSB series
POD series
PTU2 series
PB-2430-1
CC-ST-1024
BB series
PJ series
CC-PJ-0707
PSCC(A) series
PSB3-30024
Control Units
Lens Filters
Diffusion Plates
Polarizing Plates
Light Control Films
Brackets
Other
Extension Cables
Options

Characteristics

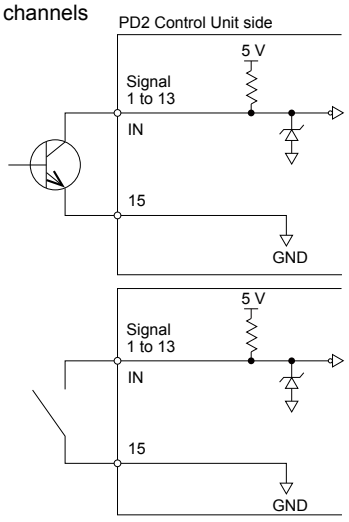
- You can select either 12 V or 24 V type according to the input voltage of the LED Light being used.
- You can select from 10 W, 30 W and 50 W types according to the power consumption of the LED Light being used.
- You can select from 2, 4 and 8-channel types if you are using individual intensity settings for multiple Light Units.
- You can select an optional external control cable if you are using external control (refer to P.197).

Example connection

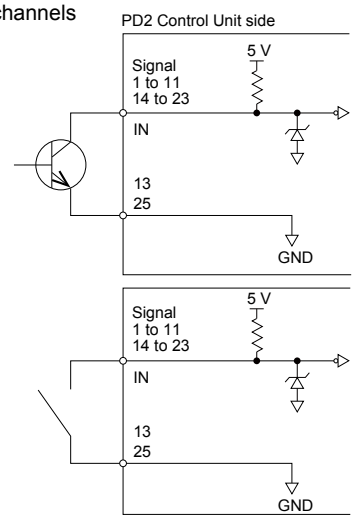
* Refer to the “Instruction Guide” for details.

Example connections of external control signal

1, 2 channels



4, 8 channels



Drive using driver IC or NPN open-collector. Drive is possible if there is a device through which flows an approximately 10 mA current from signal to ground.

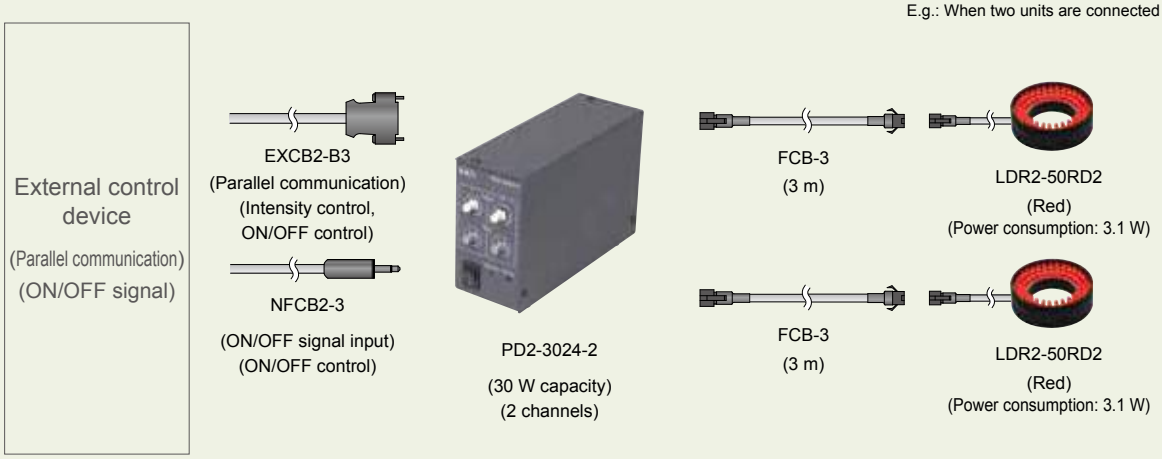
We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here. http://www.ccs-grp.com/dl/

Example system configuration

Example:

External control device — **External control cables** — **Control Unit** — **Extension cables** — **LED Lights (two units connected)**

E.g.: When two units are connected



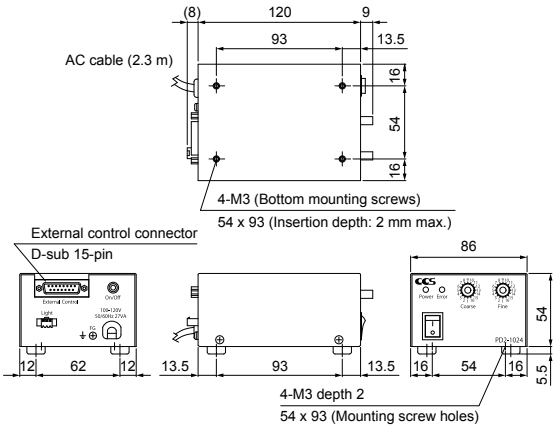
Specifications

Model name	PD2-1012	PD2-1024	PD2-3012	PD2-3024	PD2-5012	PD2-5024	PD2-3012-2	PD2-3024-2	PD2-3012-4	PD2-3024-4	PD2-3012-8	PD2-3024-8
Input voltage	100 to 120 VAC		100 to 240 VAC									
Input current*	0.25 A typ.		0.78 A typ.		1.3 A typ.		0.78 A typ.					
Frequency	50/60 Hz											
Inrush current	15 A typ.											
No. of channels	1 channel	1 channel	1 channel	1 channel	1 channel	1 channel	2 channels	2 channels	4 channels	4 channels	8 channels	8 channels
DC output voltage	12 V	24 V	12 V	24 V	12 V	24 V	12 V	24 V	12 V	24 V	12 V	24 V
Output voltage	9.5 W max.	9.0 W max.	28 W max.	28 W max.	46 W max.	46 W max.	28 W max.	28 W max.	27 W max.	27 W max.	25 W max.	25 W max.
Intensity control	Intensity control method: 62.5 kHz PWM control Manual: 16-step intensity control using coarse and fine rotary switches on the front panel External: Intensity control using 8-bit parallel signal											
External control input	Input circuit: Pull-up of +5.0 V internally by use of resistor (4.7 kΩ)								Input circuit: Pull-up of +5.0 V internally by use of resistor (2.2 kΩ)			
	HS-CMOS input: Low level of max. 1.0 V, high level of 3.5 V or more											
External control connector	D-sub 15-pin (plug)								D-sub 25-pin (plug)			
Lights ON/OFF control	ON/OFF control during manual intensity control: Ø3.5 mm microphone jack ON/OFF control during external intensity control: D-sub 15-pin ON signal (not synchronized with writing sequence)								Manual/External: D-sub 25-pin ON signal (not synchronized with writing sequence)			
Light ON/OFF response time	OFF→ON: 10 µs typ., ON→OFF: 10 µs typ.											
Startup time	0.5 sec typ.											
Output overcurrent protection	Operates at 107% of the output current. Reset by turning the power off and then on again.											
Operating environment	Temperature: 0 to 40°C, Humidity: 20% to 85%RH (with no condensation)											
Storage environment	Temperature: -20 to 60°C, Humidity: 20% to 85%RH (with no condensation)											
Weight	0.7 kg max.		1.1 kg max.		1.3 kg max.		1.1 kg max.		1.2 kg max.		1.5 kg max.	
Accessories	3-prong AC cord with ground terminal (2 m) x 1 (except for PD2-1012/1024), Instruction Guide x 1											

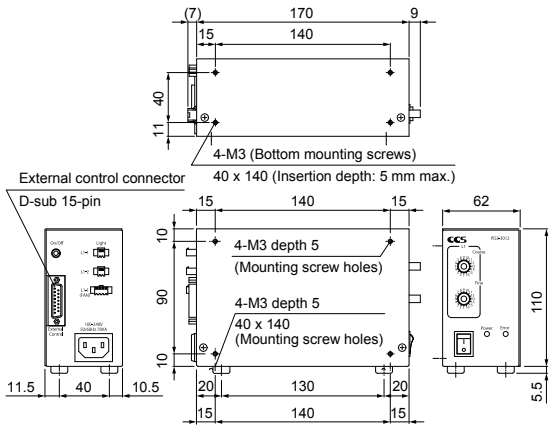
* For 100 VAC

Dimensions (mm)

PD2-1012/PD2-1024



PD2-3012/PD2-3024



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Inquire on our website here.
http://www.ccs-grp.com/contact/

PD2 series

Refer to our website for product details.

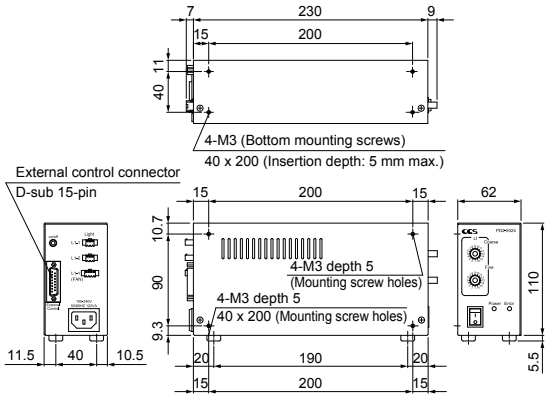
CCS PD2 ▶ Search

Use a search engine.

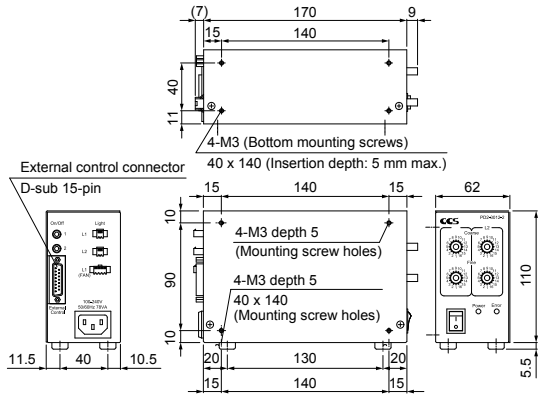
You can also use your smartphone or cell phone.

Dimensions (mm)

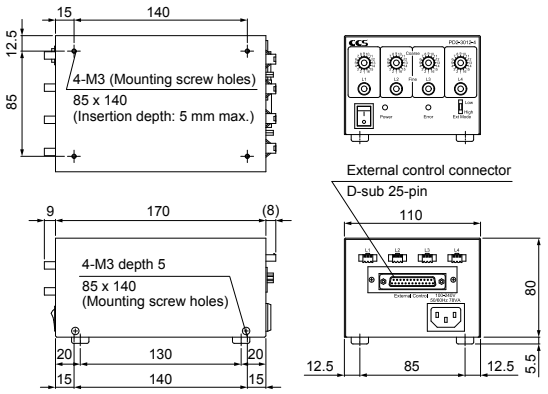
PD2-5012/PD2-5024



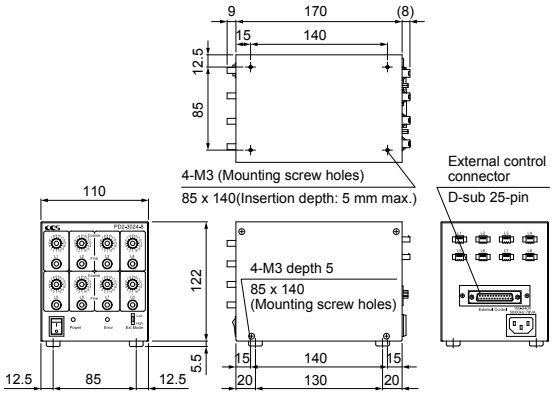
PD2-3012-2/PD2-3024-2



PD2-3012-4/PD2-3024-4



PD2-3012-8/PD2-3024-8



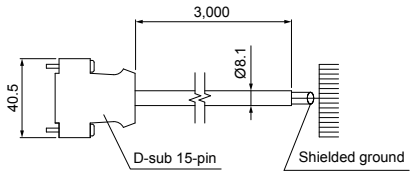
Options

External control cable

Dimensions (mm)

Corresponding Control Unit: PD2 (1 and 2 channels) series

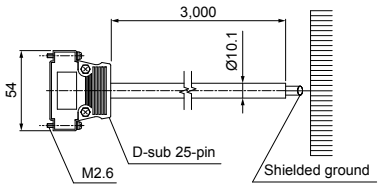
EXCB2-B3 (3 m): D-sub 15-pin



No.	Line color	No.	Line color
1	Black	9	Gray
2	White	10	Pink
3	Red	11	White/Black
4	Green	12	Red/Black
5	Yellow	13	Green/Black
6	Brown	14	Yellow/Black
7	Blue	15	Brown/Black
8	Purple	NC	(Blue/Black)

Corresponding Control Unit: PD2 (4 and 8 channels) series

EXCB2-25-3 (3 m): D-sub 25-pin

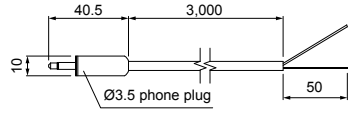


No.	Line color	No.	Line color	No.	Line color	No.	Line color
1	Black	9	Gray	17	Purple/Black	25	Brown/White
2	White	10	Pink	18	Grey/Black	NC	(Blue/White)
3	Red	11	White/Black	19	Pink/Black	NC	(Purple/White)
4	Green	12	Red/Black	20	Light green/Black	NC	(Grey/White)
5	Yellow	13	Green/Black	21	Black/White	NC	(Pink/White)
6	Brown	14	Yellow/Black	22	Red/White	NC	(Light green/White)
7	Blue	15	Brown/Black	23	Green/White		
8	Purple	16	Blue/Black	24	Yellow/White		

External ON/OFF control cable

Corresponding Control Unit: PD2 (1 and 2 channels) series

NFCB2-3 (3 m)



Line color	Signal
White	ON/OFF
Black	GND (-)

Strobe Unit
STU-3000

Strobe function available by assembling with Digital Control Unit PD2 series

CE Compliant

Characteristics

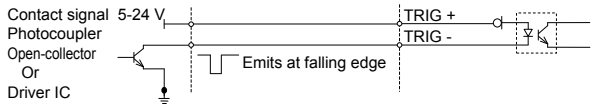
- Enables use of continuous lighting as strobe lighting.
- You can set strobe lighting time from 0.01 to 99.99 msec.
- External trigger signal provides ON/OFF control of power at the specified pulse width and strobe lighting of LED Lights.

Example connection

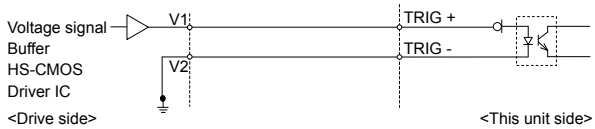
* Refer to the "Instruction Guide" for details.

External signal
Example connection

(1) Non-voltage contact drive (using the drive-side Control Unit)

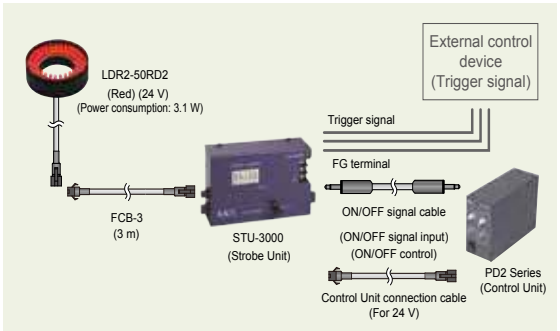


(2) If driven by the high-pulse voltage output signal



Example system configuration

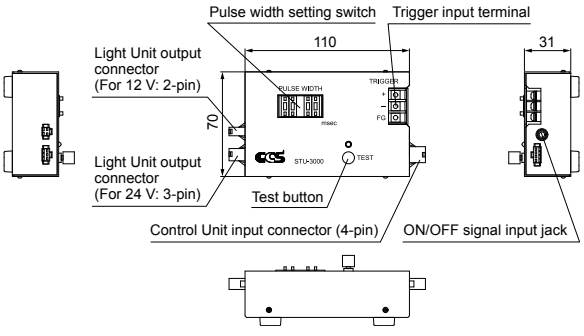
Example:
LED Light — Extension cables — Strobe Unit — Control Unit (PD2 series)
External control device



Specifications

Model name	STU-3000
Input connector	SMP-04V-BC (12 or 24 VDC) M3 terminal block 3P (trigger inputs, FG connection terminals)
Output connector	SMP-02V-BC (12 VDC) SMP-03V-BC (24 VDC) M3 jack (ON/OFF signal)
Trigger	Photocoupler input, 5 to 24 VDC, current 5 mA max. Pulse width of 20 µs or more and rising edge of 10 µs max.
ON/OFF signal	Connected with input jack on the PD2 Control Unit for light ON/OFF signal Center: Signal line, Sleeve: GND
Lighting time	0.01 to 99.99 ms
Lighting delay	10 µs max.
Accessories	ON/OFF signal and Control Unit connection cables
Weight	400 g max.
Connectible Control Units	PD2-1012/1024/3012/3024/5012/5024/3012-2/3024-2

Dimensions (mm)



Analog Control Units
PSB series

Refer to our website for product details.
CCS PSB ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Popularly priced LED Light Control Units

* Use the PD3/PD2 Series Digital Control Unit if you require fine intensity settings, controllability, or reproducibility.

PSB-1012V-WW/PSB-1024V-WW

PSB-512V/PSB-524V

PSB-1012VB/PSB-1024VB

PSB-3012VB/PSB-3024VB

CE Compliant model(s)
PSB-1012V-WW/PSB-1024V-WW

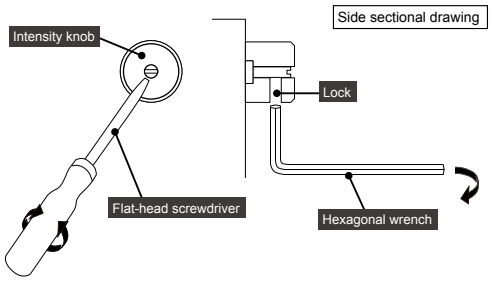
Characteristics

- Stepless intensity control is performed by varying the voltage.
- Continuous illumination making it optimal for use with fast shutter speeds.
- There is a worldwide (WW) type of Control Unit that can be used with 100 to 240 VAC.
- There is a type where the intensity knob can be fixed (special order product).

● Locking intensity knob

Adjust the intensity using a flat-head screwdriver.
To lock the knob, use a hexagonal wrench to turn the M3 set screw on the knob body and lock it.

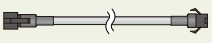
* Products with a model name ending with an "L" have a locking intensity knob.



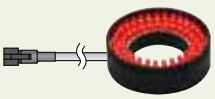
Example system configuration

Example:
Control Unit——Extension cables— LED Light

PSB-3024VB
(30 W capacity)



FCB-3
(3 m)



LDR2-50RD2
(Red)
(Power consumption: 3.1 W)

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

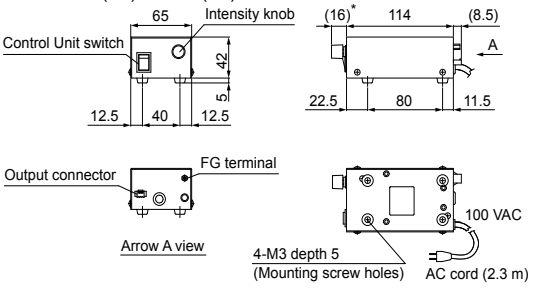
Specifications

Model name	PSB-512V PSB-512VL	PSB-524V PSB-524VL	PSB-1012VB PSB-1012VBL	PSB-1024VB PSB-1024VBL	PSB-3012VB PSB-3012VBL	PSB-3024VB PSB-3024VBL	PSB-1012V-WW	PSB-1024V-WW
Lighting method	Continuous lighting							
Drive method	Constant-voltage system							
Intensity control method	Variable voltage control							
No. of channels	1 channel							
Applicable Light Unit (rated)	12 V 5 W	24 V 5 W	12 V 10 W	24 V 10 W	12 V 30 W	24 V 30 W	12 V 10 W	24 V 10 W
Intensity	Intensity knob on the unit front panel							
Overcurrent protection	Operates at 125% of the rated current or higher. Resets automatically.						Operates at 105% of the rated current or higher. Resets automatically.	
Input voltage (rated)	100 to 120 VAC						100 to 240 VAC	
Input voltage (range)	85 to 132 VAC						85 to 264 VAC	
Power consumption (typ.)	15 VA		27 VA		78 VA		27 VA	
Frequency	50/60 Hz							
Inrush current (typ.)	15 A (For 100 VAC) * From a cold start						15 A (For 100 VAC) 20 A (For 200 VAC) * From a cold start	
Ground leakage current	3.5 mA max.						3.5 mA max. (264 VAC, 60 Hz, with no load)	
Output voltage (rated)	8.3 (±1) VDC to 12.05 (±0.15) VDC	15 (±1) VDC to 24.05 (±0.25) VDC	8.3 (±1) VDC to 12.05 (±0.15) VDC	12 (±1) VDC to 24.05 (±0.25) VDC	8.3 (±1) VDC to 12.05 (±0.15) VDC	12 (±1) VDC to 24.05 (±0.25) VDC	8.3 (±1) VDC to 12.05 (±0.15) VDC	12 (±1) VDC to 24.05 (±0.25) VDC
Output current (rated)	0.41 A	0.21 A	0.83 A	0.41 A	2.5 A	1.25 A	0.83 A	0.41 A
Dielectric strength (Input - Output)	1,000 VAC 1-min. cutoff current 10 mA 500 VDC 20 MΩ or more						1,500 VAC 1-min. cutoff current 10 mA 500 VDC 20 MΩ or more	
Dielectric strength (Input-FG)	1,000 VAC 1-min. cutoff current 10 mA 500 VDC 20 MΩ or more						1,500 VAC 1-min. cutoff current 10 mA 500 VDC 20 MΩ or more	
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)							
Cooling method	Natural air cooling							
Elevation	2,000 m max.							
Protective ground class	Class 0						Class I	
Degree of contamination	Degree of contamination 2							
Overvoltage category	Category II							
CE marking							Safety standard: EN61010-1 compliant EMC standard: EN61326 compliant	
Environmental regulations	RoHS compliant							
Material, coating, surface processing	Steel plate, Thickness: 1.0, N3, Matte finish							
Weight	Approx. 420 g		Approx. 470 g		Approx. 700 g		Approx. 470 g	
Accessories	Instruction Guide x 1						Instruction Guide x 1 AC cord (with ground wire) x 1	

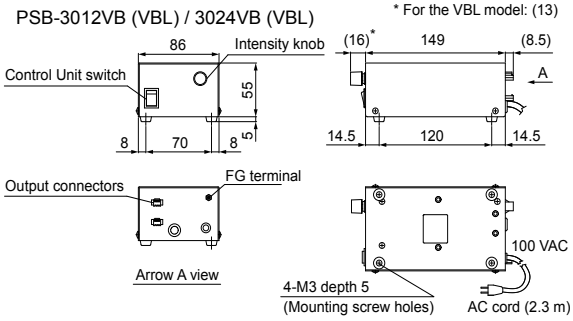
* Model names ending with an “L” have a locking intensity knob.

Dimensions (mm)

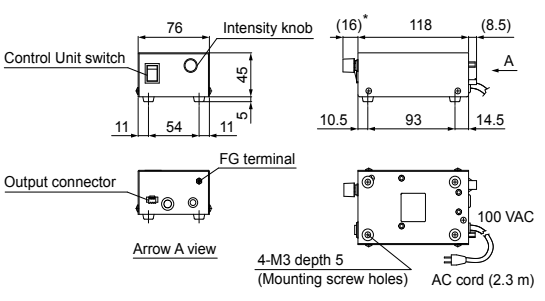
PSB-512V (VL) / 524V (VL)



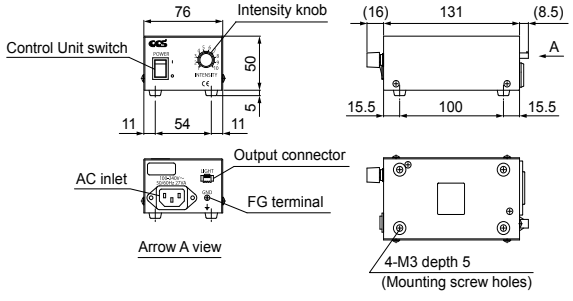
PSB-3012VB (VBL) / 3024VB (VBL)



PSB-1012VB (VBL) / 1024VB (VBL)



PSB-1012V-WW / 1024V-WW



Strobe Overdrive Control Unit
POD series

Multi-functional and fine-tunable Control Unit

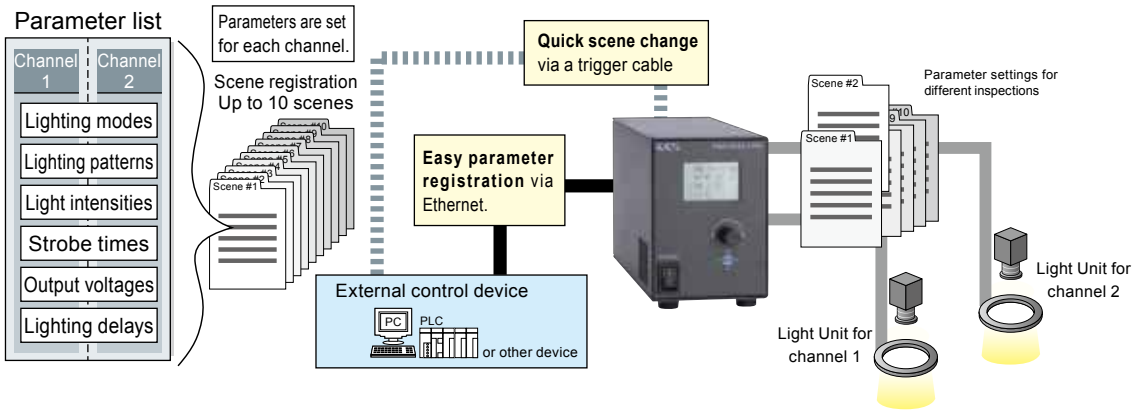
Overdrive
Variable-voltage Control
Ethernet
Enabled
Minimum Strobe Time: 1 µs
10 Scenes Storable

CE Compliant

Features

- Strobe lighting. Overdrive specifications.
- Voltage control during overdrive operation.
- Ethernet and parallel communications
- Continuous lighting under PWM control
- Two channels
- Sets of parameters related to light control can be registered.
- The light intensity can be set to one of 512 levels. Output voltage: 24 to 48 VDC
- Strobe time: 1 to 1,000 µs (in steps of 1 µs)
- Strobe delay: 0 to 1,000 µs (in steps of 1 µs)

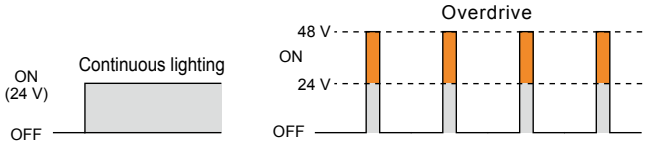
●Registering Scenes (sets of parameters)



You can register sets of parameters called scenes that consist of the light control settings for the two channels. By just applying a scene to the channels, you can easily change the settings. Up to 10 scenes can be registered. Refer to the *Instruction Guide* for details.

●What Is "Overdrive"?

Overdrive is used to emit brighter light by applying a high voltage to an LED Light Unit only for flashes shorter than 1 ms. This voltage exceeds the voltage for continuous lighting.

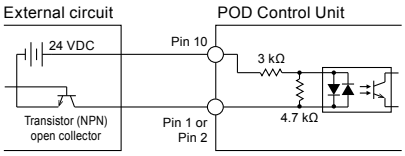


Example connections

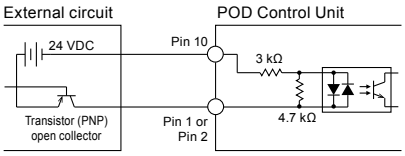
* Refer to the “Instruction Guide” for details.

Example connections of external trigger signal

Sinking (NPN)



Sourcing (PNP)

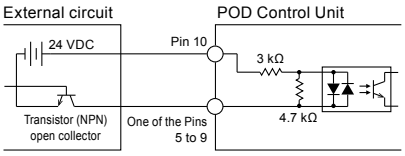


Connection specifications				
Rated input voltage	Maximum input voltage	Photocoupler ON voltage/ ON current	Photocoupler OFF voltage/ OFF current	Response time
24 VDC	26.4 VDC	21.6 VDC min./ 6 mA min.	1.5 VDC max./ 1 mA max.	Refer to the sequence diagrams on the Instruction Guide.

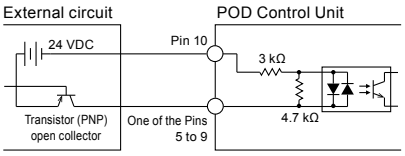
Setting of the LCG-TRG item on the COM Menu	Photocoupler	When lighting mode is set to O/D Mode, or when lighting mode is set to PWM Mode and lighting pattern is set to Strobe Lighting Pattern	When lighting mode is set to PWM Mode and lighting pattern is set to Continuous Lighting Pattern
ACTIVE HI	ON	No change	Light Unit OFF
	OFF	Light Unit flashes for the strobe time.	Light Unit ON
ACTIVE LO	ON	Light Unit flashes for the strobe time.	Light Unit ON
	OFF	No change	Light Unit OFF

Example connections of external trigger signal (Applying scenes)

Sinking (NPN)



Sourcing (PNP)

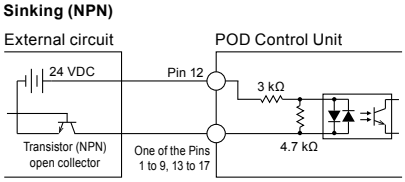


Photocoupler	Data	
	When the LGC-PAR item on the COM Menu is set to *ACTIVE HI*	When the LGC-PAR item on the COM Menu is set to *ACTIVE LO*
ON	1	0
OFF	0	1

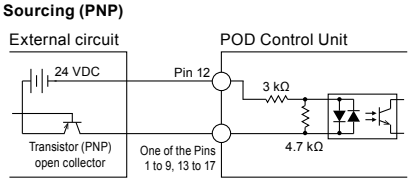
Scene number	Data				LCD
	SC3	SC2	SC1	SC0	
00	0	0	0	0	S01
01	0	0	0	1	S02
02	0	0	1	0	S03
03	0	0	1	1	S04
04	0	1	0	0	S05
05	0	1	0	1	S06
06	0	1	1	0	S07
07	0	1	1	1	S08
08	1	0	0	0	S09
09	1	0	0	1	S10

Example connections of external signal (Parallel communications)

Sinking (NPN)



Sourcing (PNP)



Photocoupler	Data	
	When the LGC-PAR item on the COM Menu is set to *ACTIVE HI*	When the LGC-PAR item on the COM Menu is set to *ACTIVE LO*
ON	1	0
OFF	0	1

Connection specifications				
Rated input voltage	Maximum input voltage	Photocoupler ON voltage/ ON current	Photocoupler OFF voltage/ OFF current	Response time
24 VDC	26.4 VDC	21.6 VDC min./ 6 mA min.	1.5 VDC max./ 1 mA max.	Refer to the sequence diagrams on the Instruction Guide.

POD series

Refer to our website for product details.

CCS POD ▶ Search

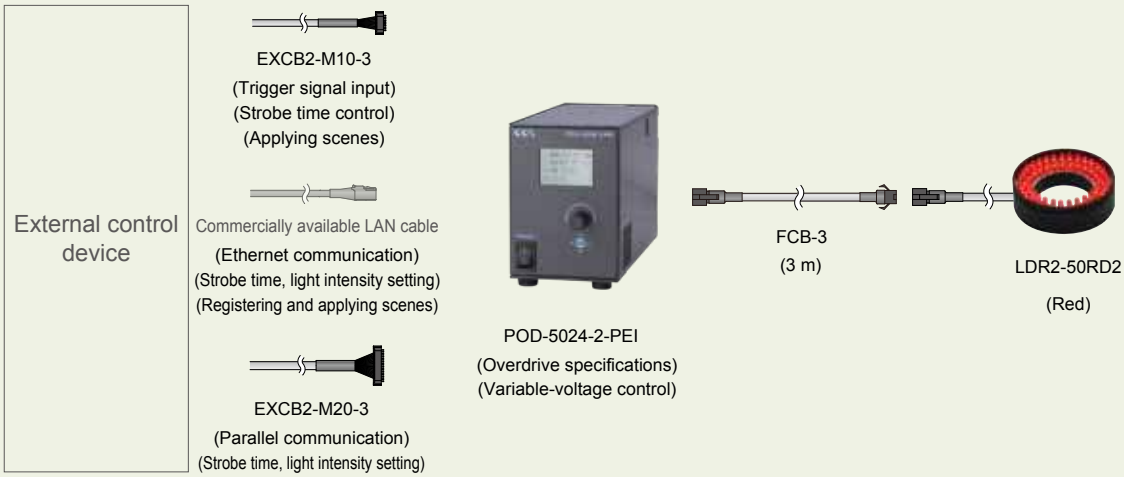
Use a search engine.

You can also use your smartphone or cell phone.

Example system configuration

Example:

External control device —— **External control cable** —— **Control Unit** ——— **Extension cables** —— **LED Light**



Specifications

Model name	POD-5024-2-PEI		
Lighting method	Strobe lighting (Overdrive mode), continuous lighting (PWM mode)		
Drive method	Costant-voltage system		
Intensity control method	Variable-voltage control or PWM control		
Number of channels	2 channels		
Output ratings (total for 2 channels)*	When both channels are in O/D Mode	Output current: 10 A max.	
	When both channels are in PWM Mode	Output power: 45 W max.	
	When the channels are used together with different lighting modes	Output current: 6.3 A max. and Output power: 36 W max.	
PWM frequency	125 kHz		
Light control settings	Manual	Operation on the front panel	512 levels
	External	Command input via TCP/IP or UDP/IP communications	
		Signal input through parallel port	
Strobe time settings	Manual	Operation on the front panel	1 to 1,000 µs (in steps of 1 µs)
	External	Command input via TCP/IP or UDP/IP communications	
		Signal input through parallel port	
Lighting delay settings	Manual	Operation on the front panel	0 to 1,000 µs (in steps of 1 µs)
	External	Command input via TCP/IP or UDP/IP communications	
		Signal input through parallel port	
Input power	100 to 240 VAC (+10%, -15%), 50/60 Hz		
Power consumption (typ.)	65 VA		
Inrush current (typ.)	15 A (at 100 VAC), 36 A (at 240 VAC) from a cold start		
Ground leakage current	3.5 mA max. (264 VAC, 60 Hz, with no load)		
Output voltage (ratings)	Overdrive mode: 24 to 48 VDC, PWM mode: 24 VDC		
Insulation withstand voltage (input-output, input-FG)	1500 VAC for one minute, Cutoff current: 10 mA, 500 VDC, 20 MΩ min.		
Overvoltage category	Category II		
Operating environment	Temperature: 0 to 40°C, Humidity: 20% to 85% (with no condensation) Altitude: 2,000 m max., Protective ground class: Class I, Pollution degree: 2, Indoor use only		
Storage environment	Temperature: −20 to 60°C, Humidity: 20% to 85% (with no condensation)		
Vibration resistance	Acceleration: 19.6 m/s^2, Frequency: 10 to 55 Hz, Cycles: 3 minutes, Sweep cycle: for 1 hour each in X, Y, and Z directions		
Cooling method	Forced air cooling		
CE Marking	Safety standard: Conforms to EN 61010-1, EMC standard: Conforms to EN61000-6-2, EN61000-6-4		
Environmental regulations	RoHS compliant		
Material, coating, and surface processing	Steel sheet, Cover thickness: 1.6 mm, Chassis thickness: 1.0 mm, N3 (leather tone)		
Weight	1,500 g max.		
Accessories	One Instruction Guide, One 2-m-long 3-prong AC power cord with ground terminal		

* Please use the Light Units within the output current and power shown above.
For information on the availability of your Light Units, refer to our website. http://www.ccs-grp.com/lnk/qr/pod

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products

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

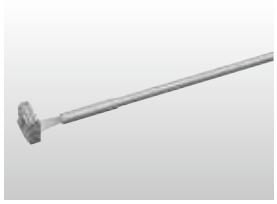
Options

Dimensions (mm)

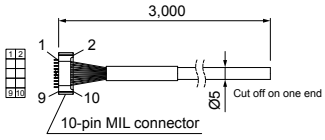
External control cables

Trigger input cable

Used to input a external trigger signal of parallel bits. Used for performing strobe lighting and scene application.



Model name: EXCB2-M10-3

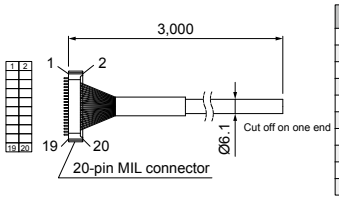


PIN No.	Line color	Marking
1	Orange	Black1
2	Orange	Red1
3	Gray	Black1
4	Gray	Red1
5	White	Black1
6	White	Red1
7	Yellow	Black1
8	Yellow	Red1
9	Pink	Black1
10	Pink	Red1

Parallel communication cable

Used for performing external control via parallel communication.

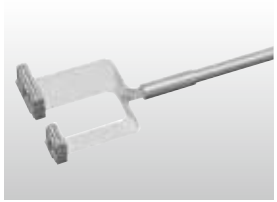
Model name: EXCB2-M20-3



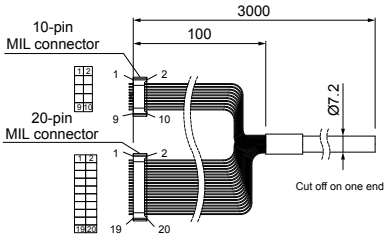
PIN No.	Line color	Marking	PIN No.	Line color	Marking
1	Orange	Black1	11	Orange	Black2
2	Orange	Red1	12	Orange	Red2
3	Gray	Black1	13	Gray	Black2
4	Gray	Red1	14	Gray	Red2
5	White	Black1	15	White	Black2
6	White	Red1	16	White	Red2
7	Yellow	Black1	17	Yellow	Black2
8	Yellow	Red1	18	Yellow	Red2
9	Pink	Black1	19	Pink	Black2
10	Pink	Red1	20	Pink	Red2

Parallel communication/Trigger input branch cable

Branch cable that combines parallel communication and trigger input cables into a single cable.



Model name: EXCB2-M10M20-3



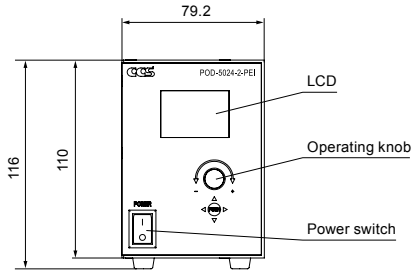
10-pin MIL connector

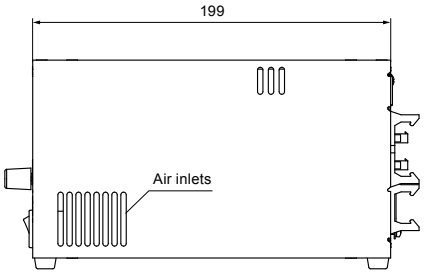
PIN No.	Line color	Marking
1	Orange	Black1
2	Orange	Red1
3	Gray	Black1
4	Gray	Red1
5	White	Black1
6	White	Red1
7	Yellow	Black1
8	Yellow	Red1
9	Pink	Black1
10	Pink	Red1

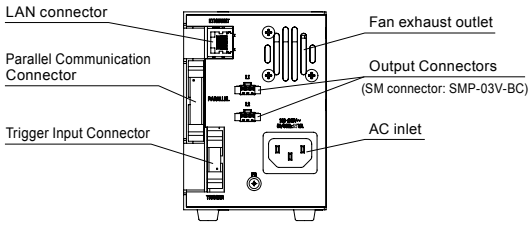
20-pin MIL connector

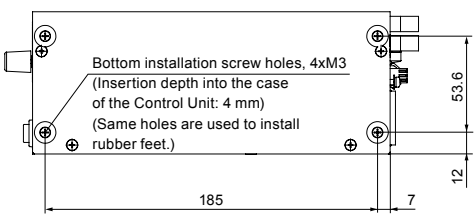
PIN No.	Line color	Marking
1	Orange	Black2
2	Orange	Red2
3	Gray	Black2
4	Gray	Red2
5	White	Black2
6	White	Red2
7	Yellow	Black2
8	Yellow	Red2
9	Pink	Black2
10	Pink	Red2
11	Orange	Black3
12	Orange	Red3
13	Gray	Black3
14	Gray	Red3
15	White	Black3
16	White	Red3
17	Yellow	Black3
18	Yellow	Red3
19	Pink	Black3
20	Pink	Red3

Dimensions (mm)









Strobe Overdrive Control Unit
PTU2 series

Refer to our website for product details.
CCS PTU2 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Overdrive specifications Strobe Control Unit
Enables even brighter emission of Light Units

Overdrive Specifications

CE Compliant

The supplied AC cord is for use with 100 to 120 VAC. If you would like to use the Control Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

* The PTU2 series enables strobe lighting with overdrive. Overdrive refers to brighter than normal emission of light by increasing the voltage and current supplied to the Light Unit.

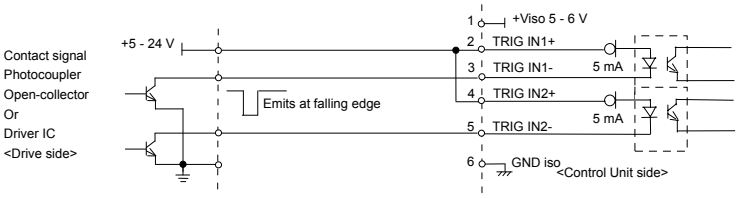
PD3 series
PD2 series
STU-3000
PSB series
POD series
PTU2 series
PB-2430-1
CC-ST-1024
BB series
PJ series
CC-PJ-0707
PSCC(A) series
PSB3-30024
Control Units
Lens Filters
Diffusion Plates
Polarizing Plates
Light Control Films
Brackets
Other
Extension Cables
Options

Characteristics

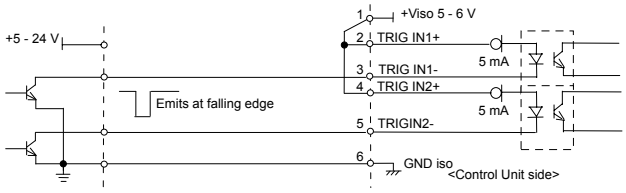
- The PTU2 series enables the lights to emit several times brighter than using the ON/OFF control function of the conventional PSB and PD3/PD2 series, or by strobe lighting using STU-3000.
- The two independent channels allow for setting each channel to emit for 10 to 990 µs.

Example connections * Refer to the “Instruction Guide” for details.

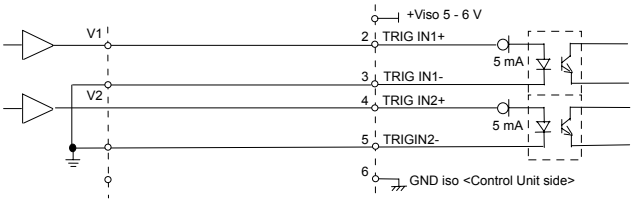
(1) Non-voltage contact drive 1
(using drive-side power supply)



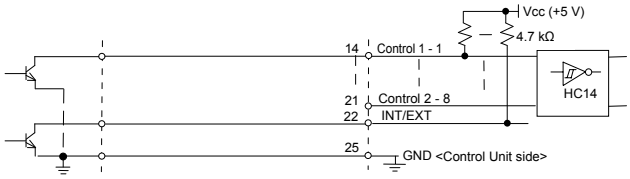
(2) Non-voltage contact drive 2
(using insulation power supply)



(3) If driven by the high-pulse
voltage output signal



(4) External intensity input



Low: 0 V or more 1.13 V max. High: 3.15 V or more 5 V max.

We have various materials. PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
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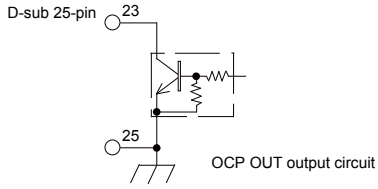
Overcurrent protection function

PTU2 Control Units forcibly stop the power output when the current consumption in the Light Unit exceeds the value shown below. The error lamp (red) on the front of the unit also flashes. Stopping of output is not released until the Control Unit is restarted.

Model name	PTU2-3012	PTU2-3024
Power consumption	8.5 A peak min	6.0 A peak min

* Use 24 VDC and 20 mA max. for the OCP OUT load in order to obtain a margin.



Example system configuration

Example:

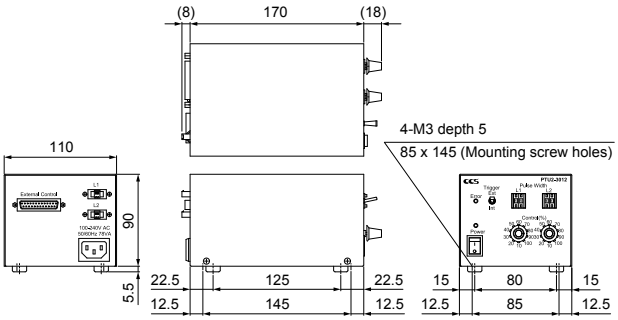
External control device — **External control cable** — **Control Unit** — **Extension cables** — **LED Light**

Specifications

Model name	PTU2-3012	PTU2-3024
Input voltage (rated)	100 to 240 VAC	
Frequency	50/60 Hz	
Inrush current (typ.)	15 A (for 100 VAC) 30 A (for 240 VAC) * At cold start	
Output	PTU2-3012: 18 VDC 8.1 A max. (Peak value when connected to max. load) PTU2-3024: 48 VDC 4.3 A max. (Peak value when connected to max. load)	
Applicable Light Unit (rated)	Total for 2 channels: 27 W max.	
Lighting time	10 to 990 µs Lighting time = Pulse Width [x10 µs] x Control (10 to 100%) Pulse Width: 0 to 99 x 10 µs Control: 10 to 100% (10% steps)	
Lighting delay	15 µs max.	
Output connector	SMP-02V-BC (PTU2-3012)/SMP-03V-BC (PTU2-3024)	
External control connector	D-sub 25-pin (plug), M2.6 screw	
Overcurrent protection	Output shutdown: 120% min. of rated load * Reset by clearing the cause, and then turning the power off and on again.	
Weight	1.2 kg max.	
Accessories	3-prong AC cord with ground terminal (2 m) x 1, external control connector x 1, Instruction Guide x 1	

Dimensions (mm)

PTU2-3012/3024

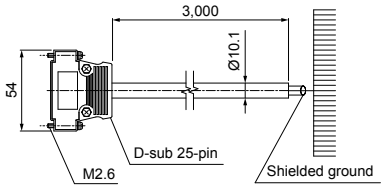


Options

External control cable

Dimensions (mm)

EXCB2-25-3 (3 m): D-sub 25-pin



No.	Line color	No.	Line color	No.	Line color	No.	Line color
1	Black	9	Gray	17	Purple/Black	25	Brown/White
2	White	10	Pink	18	Grey/Black	NC	(Blue/White)
3	Red	11	White/Black	19	Pink/Black	NC	(Purple/White)
4	Green	12	Red/Black	20	Light green/Black	NC	(Grey/White)
5	Yellow	13	Green/Black	21	Black/White	NC	(Pink/White)
6	Brown	14	Yellow/Black	22	Red/White	NC	(Light green/White)
7	Blue	15	Brown/Black	23	Green/White		
8	Purple	16	Blue/Black	24	Yellow/White		

Analog Controller
PB-2430-1

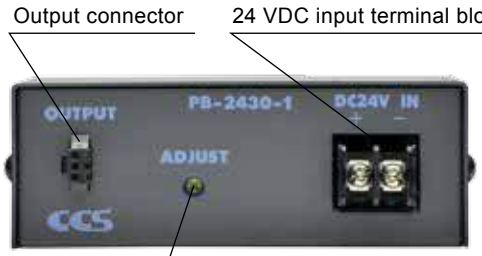
Refer to our website for product details.
CCS PB-2430-1 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Low-price DC Input Controller contributing to cost reductions

CE Compliant

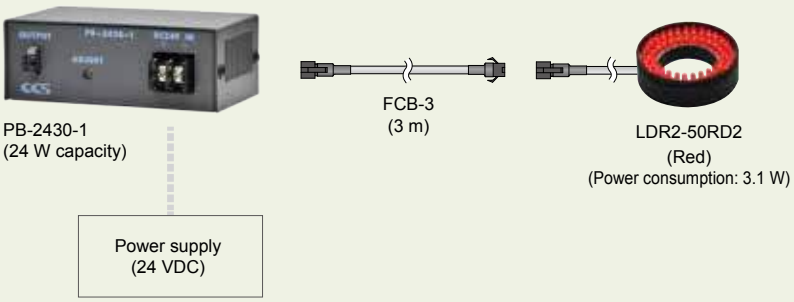
Characteristics

- 24 VDC input
- 24 V/24 W rating
- 1-channel specification
- DIN rail installation
- Intensity control with variable voltage
- Lightweight, compact design



Example system configuration

Example:
Controller —— **Extension cables** — **LED Light**
|
Power supply
(24 VDC)



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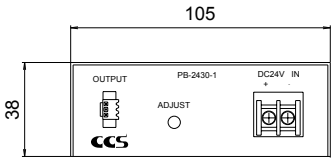
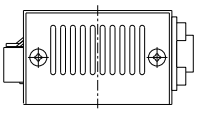
Specifications

Model	PB-2430-1
Lighting method	Constant lighting
Drive method	Constant-voltage system
Light control method	Variable voltage control
No. of channels	One channel
Applicable illumination (rating)	24 V 24 W
Over current protection	Built in (input section, with poly-switch), 5.0 A, 20°C during continuous operation
Input voltage (rating)	24 VDC
Input voltage (range)	21.6 to 26.4 VDC
Power consumption (typ.)	30 W
Output voltage (range)	15.0 to 23.0 VDC (±10%) (for 24 VDC input)
Insulation resistance, dielectric strength (Input/output - housing)	50 VDC, 20 MΩ min. 250 VAC for one minute 1 mA cutoff current
Operating temperature and humidity	Temperature: 0 to 40°C, Humidity: 20 to 85% RH (No condensation)
Storage temperature and humidity	Temperature: -20 to 60°C, Humidity: 20 to 85% RH (No condensation)
Cooling method	Natural air cooling
CE marking	EMC standard: Complies with EN61000-6-2, EN61000-6-4
Environmental regulation	RoHS compliant
Input connector	Input terminal block, use M3 screws with 7.62 mm pitch
Output connector	SMP-03V-BC (JST)
Material, coating, surface processing	Steel plate, Thickness: 1.0, N3, Matt finish
Weight	270 g

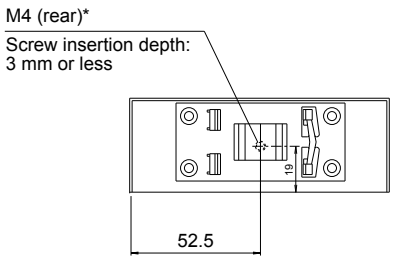
Dimensions (mm)



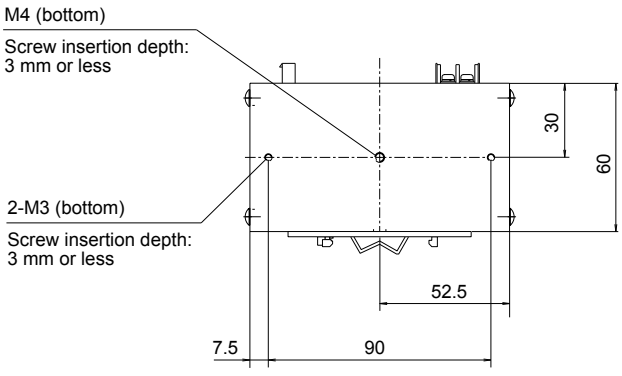
Front



Side



Rear



Bottom

* Remove the DIN rail bracket to find the hole.

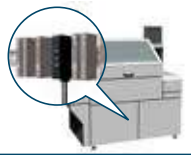
Compact Controller
CC-ST-1024

Refer to our website for product details.
CCS CC-ST-1024 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Compact, lightweight LED Light-dedicated controller

CE Compliant

Install inside the device
• Install on compact device or single devices



Install inside a control panel to centrally manage other instruments

Install next to the camera or near the light for a compact configuration

* This is a conceptual image.

Characteristics

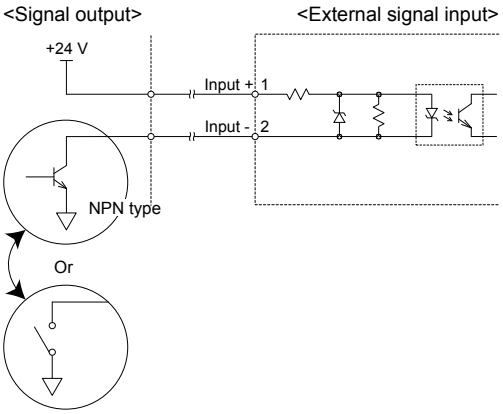
- This LED Light-dedicated controller has the same size as a sensor amp.
- DIN rail installation
- Can be installed in various locations such as inside a control panel or next to any type of sensor amp inside a device.
- Power supply is 24 VDC, optimal for on-site usage.

Example connections

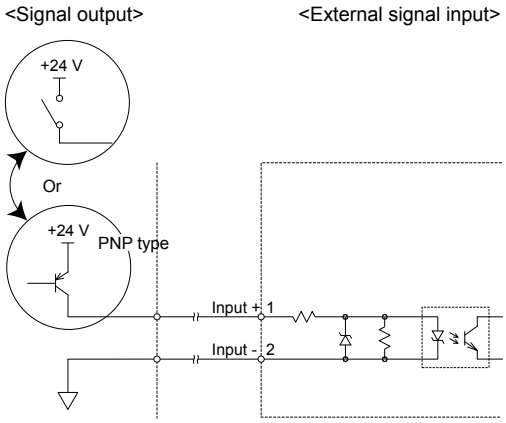
* Refer to the “Instruction Guide” for details.

External signal Example connections

Sink type



Source type



Becomes HIGH when 24 V is applied to input+ and 0 V is applied to input-.
Apply a current using the open-collector circuit, high-speed photocoupler, semiconductor relay, and so on. (We recommend 10 mA or less.) The pulse width must be 10 µs or more (Applied voltage 24 V±10%).
If using in an environment where noise is likely to occur, we recommend isolating the signal line and GND line from the drive device using a photocoupler or semiconductor relay.

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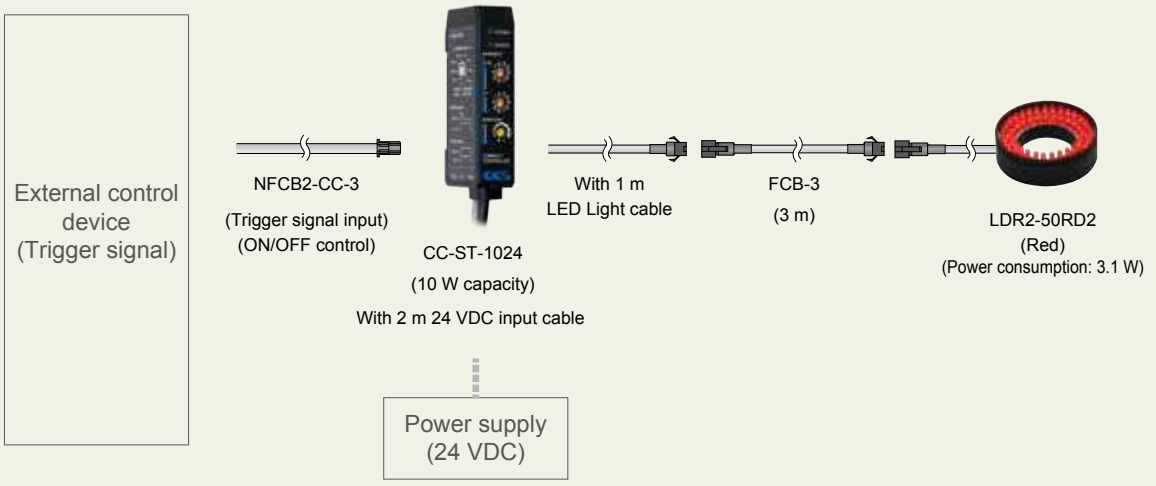
Example system configuration

Example:

External control device — **External control cable** — **Controller** — **Extension cables** — **LED Light**

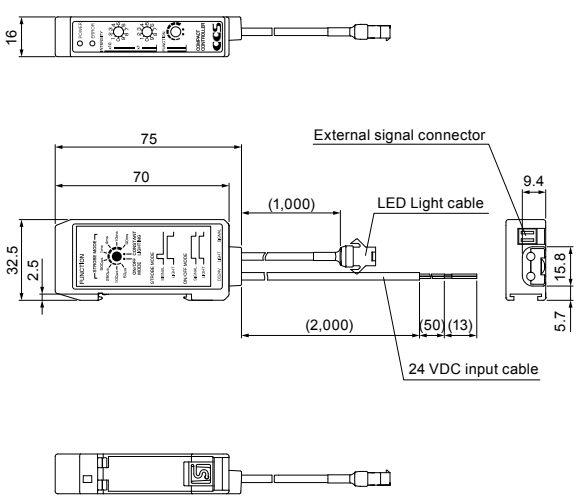
Power supply (24 VDC)



Specifications

Model name	CC-ST-1024
Drive method	Constant-voltage system
Intensity control method	PWM control and lighting time control
Applicable Light Unit (rated)	24 V 10 W
PWM frequency	100 kHz
Input overcurrent protection	Overcurrent protection is provided by fuse interruption.
Input voltage	24 VDC±10%
Power consumption (typ.)	11.0 W (with 10 W LED Light during max. intensity drive)
Output voltage (rated)	24 VDC
Operating environment (indoors only)	Temperature: 0 to 40°C, Humidity: 20% to 85%RH (with no condensation)
Storage environment	Temperature: -20 to 60°C, Humidity: 20% to 85%RH (with no condensation)
Vibration resistance	Acceleration: 19.6 m/sec^2, Frequency: 10 to 55 Hz, Cycle: 3 min., Sweep cycle: Each hour in the X, Y, and Z directions
Impact resistance	Acceleration: 49.0 m/sec^2, Operation time: 30 m sec, Repetitions: Three times for each of the six directions
Cooling method	Natural air cooling
CE marking	EMC standard: EN61326 Class A compliant
Environmental regulations	RoHS compliant
Material	ABS
Weight	80 g
Accessories	Instruction Guide x 1, flat-head screwdriver x 1

Dimensions (mm)



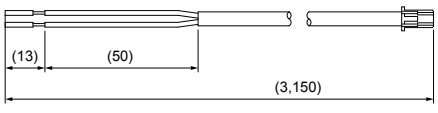
Options

External signal cable

NFCB2-CC-3 (3 m)

This cable is for use with external signals. It is used for intaking HIGH signals (during ON/OFF mode) and trigger signals (during strobe mode) into this product.

Dimensions (mm)



1: White (Input+)
2: Black (Input -)

Housing: PAP-02V-K (JST)
Contact: BPHD-002T-P0.5 (JST)

Building Block Types
BB series

Refer to our website for product details.
CCS BB ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

Building blocks types allowing for connecting companion units

Overdrive Specifications


Master unit


Slave unit

Interface unit

CE Compliant

Characteristics

- You can select the master, slave and interface units, and combine them to configure various systems.
- You can add and combine the necessary units easily to provide flexible Light Unit control (max. of 18 units can be connected).
  Additionally, power input is 24 VDC, which is optimal for on-site power supply environments. DIN rail mounting is also applicable for these units.

Master units

Unit equipped with setting and management functions.
Controls all linked units.
There are continuous and strobe lighting types.
You can select a 12 or 24 V output type according to the connected Light Units.

		Model name
Continuous emitting	12 V	BB-V12P30-M
	24 V	BB-V24P30-M
Strobe emitting	12 V	BB-V12S30-M
	24 V	BB-V24S30-M

* The strobe lighting type emits strobe with overdrive. Overdrive refers to brighter than normal emission of light by increasing the voltage and current supplied to the Light Unit.

Slave units

Unit for expansion.
You can add and link according to the amount of Light Units being used.
There are continuous and strobe lighting types.
You can select a 12 or 24 V output type according to the connected Light Units.

		Model name
Continuous emitting	12 V	BB-V12P30-S
	24 V	BB-V24P30-S
Strobe emitting	12 V	BB-V12S30-S
	24 V	BB-V24S30-S

* The strobe lighting type emits strobe with overdrive. Overdrive refers to brighter than normal emission of light by increasing the voltage and current supplied to the Light Unit.

Interface units

This external control unit is equipped with a parallel communication function.
There are CMOS and photocoupler input type units.

	Model name
CMOS	BB-CPC-S
Photocoupler	BB-CPP-S

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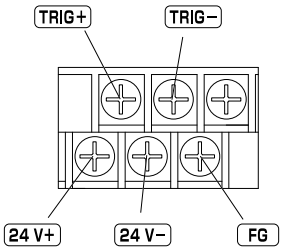
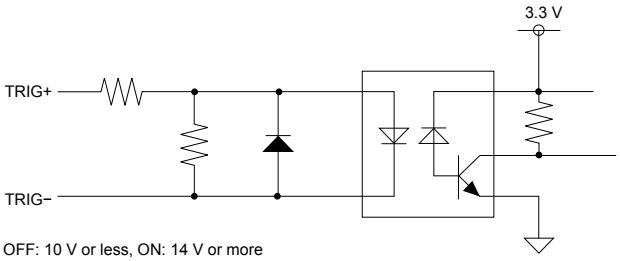
Example connections * Refer to the “Instruction Guide” for details.

Master unit/ Slave unit terminal block Trigger input circuit drawing

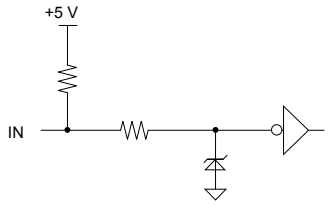




OFF: 10 V or less, ON: 14 V or more

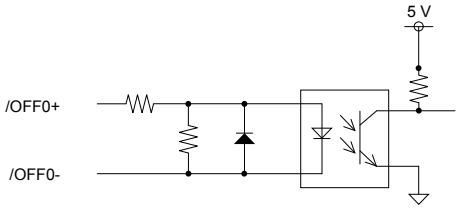
Interface unit Input circuit drawing

• CMOS input type



Input voltage - Low: 1.5 V or less, High: 3.5 V or more
Maximum permissible input voltage: 5.5 V

• Photocoupler input type



Input voltage - OFF: 10 V or less, ON: 14 V or more
Maximum permissible input voltage: 26.4 V

Control signal: CS0-CS2, WR, EXT, OFF0-OFF7, B0-B7 Drive the signal using driver IC, NPN open-collector, and so on.

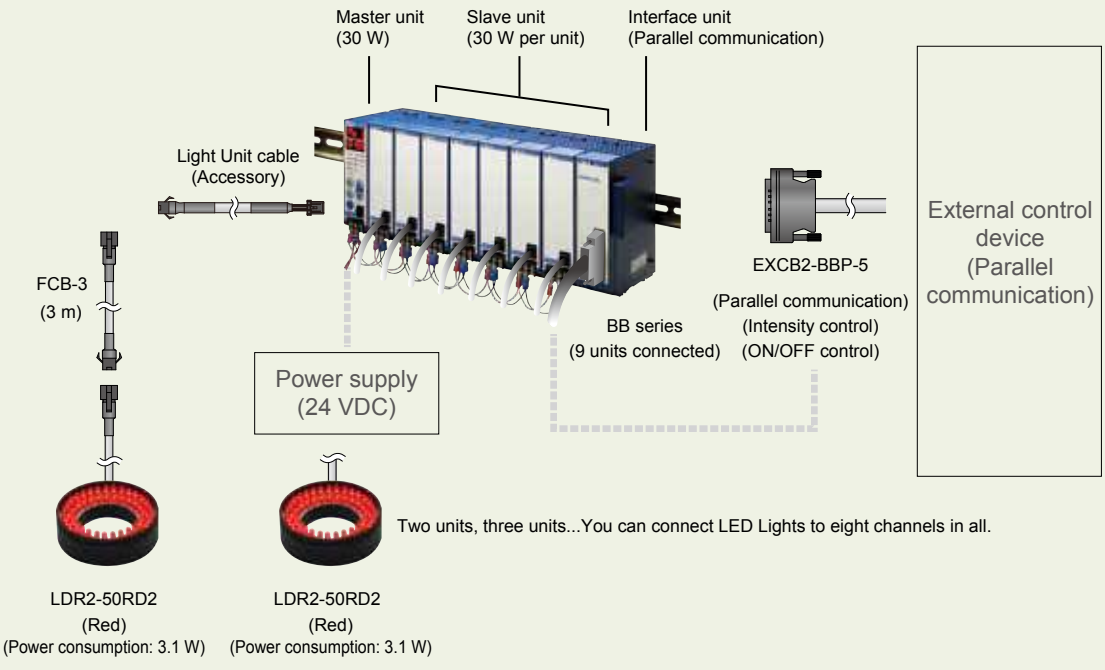
Example system configuration

Example: **Light Unit cable (Accessory)** — **Controller** — **External control cables** — External control device

Extension cables

LED Light

Power supply (24 VDC)



BB series

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You can also use your smartphone or cell phone.

Specifications

Product name		Master unit/Slave unit			
Model name	Master units	BB-V12P30-M	BB-V24P30-M	BB-V12S30-M	BB-V24S30-M
	Slave units	BB-V12P30-S	BB-V24P30-S	BB-V12S30-S	BB-V24S30-S
Lighting method		Continuous/Strobe lighting (No overdrive)		Strobe lighting (With overdrive)	
Drive method		Constant-voltage system			
Intensity control method		PWM control/Lighting time control		Lighting time control	
No. of channels		1 channel			
Applicable Light Unit (rated)		12 V/30 W	24 V/30 W	12 V/30 W	24 V/30 W
Input voltage (rated)		24 VDC			
Input voltage (range)		21.6 to 26.4 VDC	21.6 to 25.3 VDC	21.6 to 26.4 VDC	21.6 to 26.4 VDC
Power consumption (typ.)		42 W (When connected to 30 W load)	42 W (When connected to 30 W load)	Avg. power consumption: 16 W (When connected to 30 W load) Peak power consumption: 72 W (When connected to 30 W load and strobe is being emitted)	Avg. power consumption: 16 W (When connected to 30 W load) Peak power consumption: 26 W (When connected to 30 W load and strobe is being emitted)
Output voltage (rated)		12 VDC	24 VDC	18 VDC	48 VDC
Output current (rated)		2.5 A	1.25 A	8.0 A	4.3 A
Power cable length		5 m max.			
Terminal block control cable length		5 m max.			
Light Unit cable length		5 m max.			
Installation method		Secured by DIN rail, bottom mounting holes, or optional independent stand			
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		350 g max.	350 g max.	350 g max.	400 g max.
Accessories		Master unit: Terminal unit x 1, terminal block (cover x 1, installation screw x 1), Light Unit cable x 1, User Manual x 1 Slave unit: Connection hardware (fixture x 2 , installation screw x 4), terminal block (cover x 1, installation screw x 1), Light Unit cable x 1, User Manual x 1			

Product name	Interface Unit (Parallel Communication Type)	
Model name	BB-CPC-S	BB-CPP-S
Input voltage (rated)	24 VDC (supplied from connected connector)	
Input voltage (range)	21.6 to 26.4 VDC (supplied from connected connector)	
Power consumption (typ.)	10 W (supplied from connected connector)	
External control input/output	Parallel bit method	
External control input/output specifications	Non-insulated C-MOS level input/output Low: 1.5 V max. High: 3.5 V max. 2.2 kΩ 5 V pull-up Input voltage range: 0 to 5.5 VDC	Photocoupler insulation: 24 V input/output OFF: 10 V max. with OFF current of 4 mA max. ON: 14 V or more with ON current of 5.8 mA or more Input voltage range: 0 to 26.4 VDC
External control cable length	5 m max.	
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	300 g max.	
Accessories	Connection hardware (fixture x 2 , installation screw x 4), User Manual x 1	

Options

Stand

BB-FT

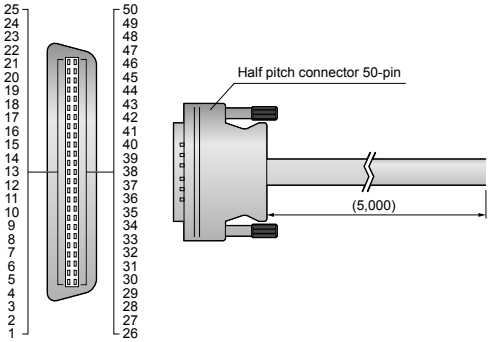
Independent stand attached to the unit.
Use this when securing the unit to a tabletop, floor or similar location other than DIN rail.

External control cable

EXCB2-BBP-5 (5 m)

Cable used to connect an interface unit (parallel communication type) with an external device such as a PLC or image processor.
(Connector: 50-pin half-pitch connector)

Dimensions (mm)



No.	Line color	Color and segments of broken line	BB-CPC-S (CMOS input)	BB-CPP-S (Photocoupler input)	No.	Line color	Color and segments of broken line	BB-CPC-S (CMOS input)	BB-CPP-S (Photocoupler input)
1	Orange	Black1	GND	NC	26	Orange	Red1	NC	NC
2	Gray	Black1	GND	NC	27	Gray	Red1	NC	NC
3	White	Black1	GND	NC	28	White	Red1	NC	NC
4	Yellow	Black1	GND	B7–	29	Yellow	Red1	B7	B7+
5	Pink	Black1	GND	B6–	30	Pink	Red1	B6	B6+
6	Orange	Black2	GND	B5–	31	Orange	Red2	B5	B5+
7	Gray	Black2	GND	B4–	32	Gray	Red2	B4	B4+
8	White	Black2	GND	B3–	33	White	Red2	B3	B3+
9	Yellow	Black2	GND	B2–	34	Yellow	Red2	B2	B2+
10	Pink	Black2	GND	B1–	35	Pink	Red2	B1	B1+
11	Orange	Black3	GND	B0–	36	Orange	Red3	B0	B0+
12	Gray	Black3	GND	OFF7–	37	Gray	Red3	OFF7	OFF7+
13	White	Black3	GND	OFF6–	38	White	Red3	OFF6	OFF6+
14	Yellow	Black3	GND	OFF5–	39	Yellow	Red3	OFF5	OFF5+
15	Pink	Black3	GND	OFF4–	40	Pink	Red3	OFF4	OFF4+
16	Orange	Black4	GND	OFF3–	41	Orange	Red4	OFF3	OFF3+
17	Gray	Black4	GND	OFF2–	42	Gray	Red4	OFF2	OFF2+
18	White	Black4	GND	OFF1–	43	White	Red4	OFF1	OFF1+
19	Yellow	Black4	GND	OFF0–	44	Yellow	Red4	OFF0	OFF0+
20	Pink	Black4	GND	ERROUT–	45	Pink	Red4	ERROUT	ERROUT+
21	Orange	Continuous black line	GND	EXT–	46	Orange	Continuous black line	EXT	EXT+
22	Gray	Continuous black line	GND	WR–	47	Gray	Continuous black line	WR	WR+
23	White	Continuous black line	GND	CS2–	48	White	Continuous black line	CS2	CS2+
24	Yellow	Continuous black line	GND	CS1–	49	Yellow	Continuous black line	CS1	CS1+
25	Pink	Continuous black line	GND	CS0–	50	Pink	Continuous black line	CS0	CS0+

We have various materials.

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Download here.
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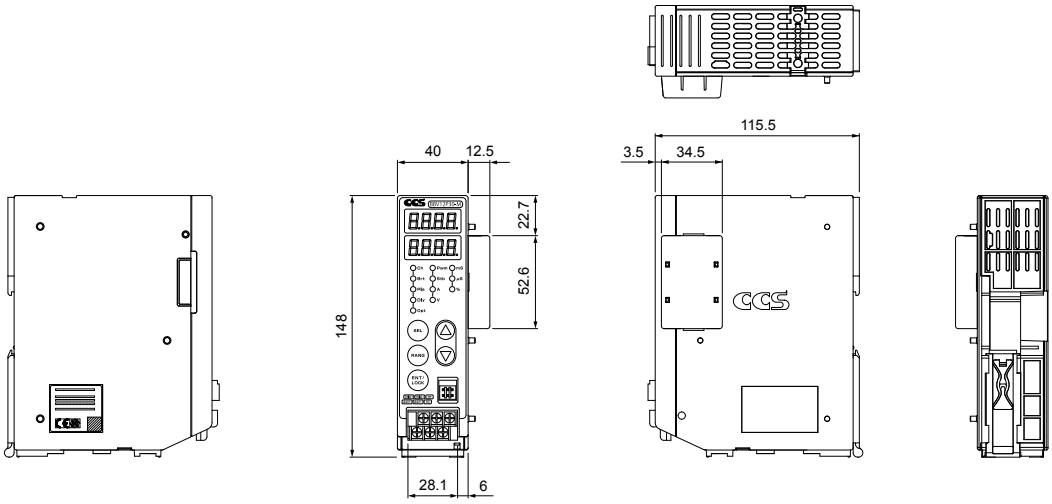
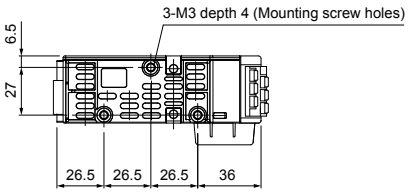
Dimensions (mm)

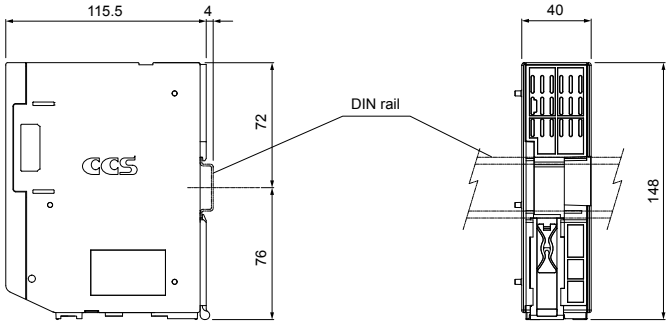
Master unit

* Slave and interface units have the same external dimensions as the master unit.

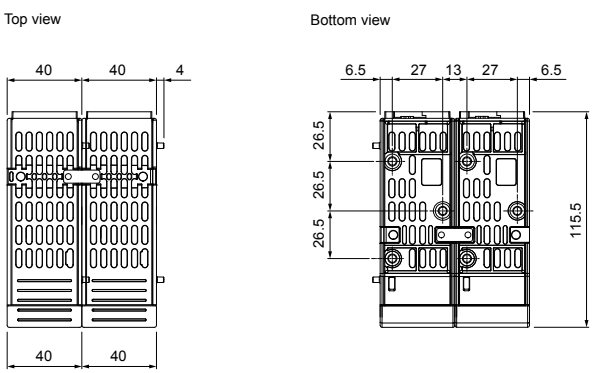




DIN rail installation



Connected assembly



Spot Light Dedicated **PJ** series

Four types to match your use environment

AC Input Types

PJ-1505-2CA
2 channels

PJ-1505-3CA
3 channels

24 VDC Input Types

PJ-1505-2CD24
2 channels

PJ-1505-3CD24
3 channels

CE Compliant model(s)
PJ-1505-2CA/PJ-1505-3CA/PJ-1505-2CD24/PJ-1505-3CD24

The supplied AC cord is for use with 100 to 120 VAC. If you would like to use the Control Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

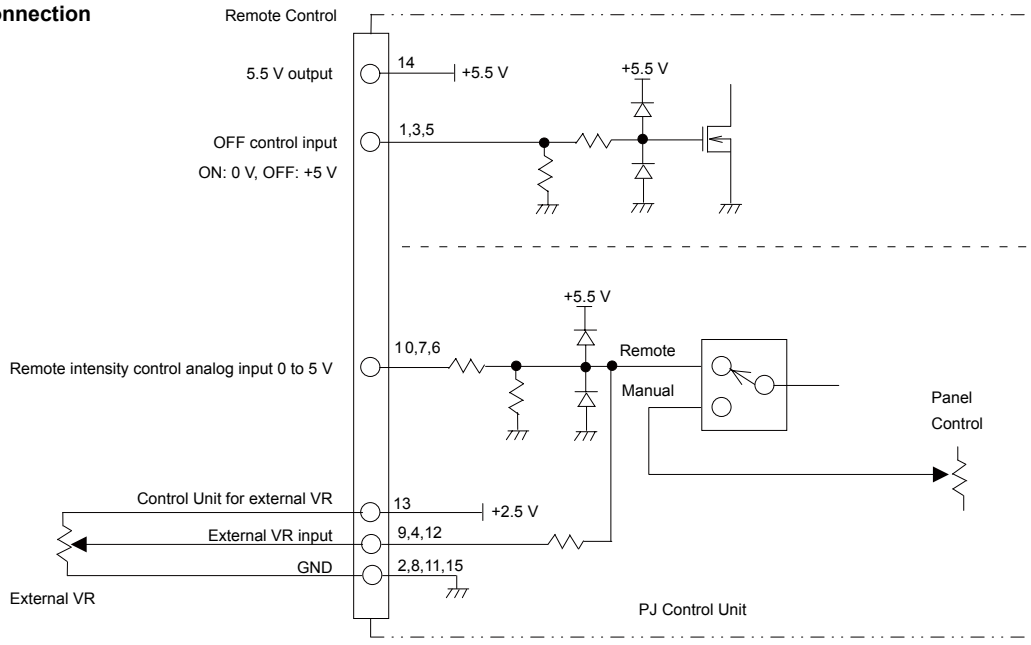
Characteristics

- Dedicated Analog Control Units for the Spot Light HLV2 series. (Spot Light HLV2 series Product Page ▶ P. 109)
- Stepless intensity control is performed by varying the current.
- There are 2 and 3-channel Light Unit output types.
- You can select AC or DC power supply types.

Example connection

* Refer to the “Instruction Guide” for details.

PJ series
Example connection

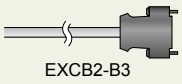


* Remote intensity control or external VR can be used. (Cannot be used at same time.)

Example system configuration

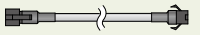
Example:
External control device — **External control cable** — **Control Unit** — **Extension cables** — **LED Light (Spot Light)**

External control device
(Analog output)
(0 to 5 V output)



EXCB2-B3
(Intensity analog input)
(OFF control)

PJ-1505-2CA
(AC input)
(2 channels)
(Spot Light dedicated)



FCB-3
(3 m)
* Branch cables cannot be used.

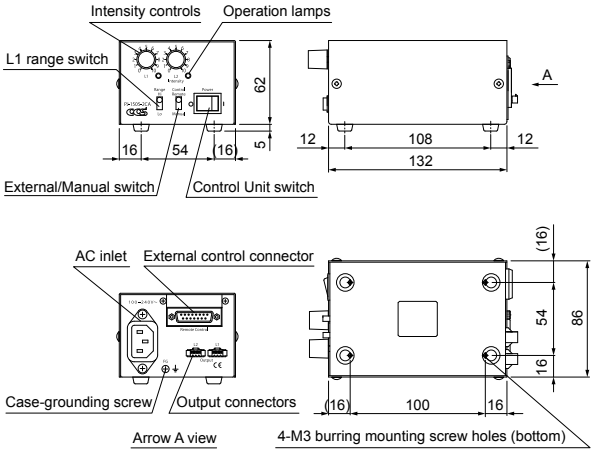
HLV2-22SW
(White)
(Power consumption: 1.4 W)

Specifications

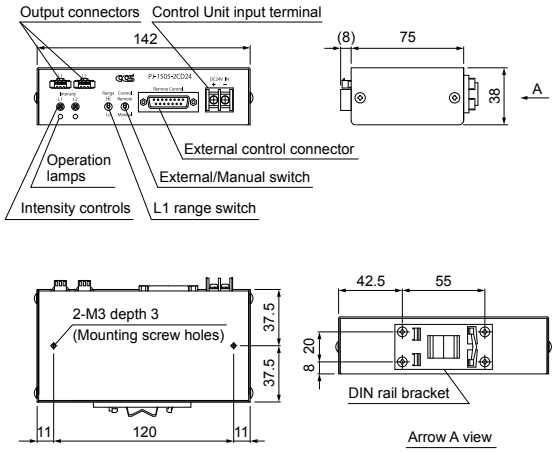
Model name	PJ-1505-2CA	PJ-1505-3CA	PJ-1505-2CD24	PJ-1505-3CD24
Input voltage (rated)	100 to 240 VAC		24 VDC	
Input voltage (range)	85 to 264 VAC		10 to 24 VDC	
Power consumption	27 VA typ.	37 VA typ.	10 W typ.	14.5 W typ.
No. of channels	2	3	2	3
Output voltage (max. rating)	5.5 VDC			
Intensity	Manual: Intensity control on front of unit Remote: Analog input voltage of 0 to 5 V (5.25 V max.)			
ON/OFF control	OFF: 2.5 to 5.0 V (24 V max.), ON: 0.8 to 0 V (pull-down with 4.7 kΩ resistance)			
External control connector	D-sub 15-pin (plug) *Optional external control cable: EXCB2-B3 (3 m)			
Weight	640 g	660 g	380 g	
Accessories	AC cord with ground wire (2 m), Instruction Guide x 1		Rubber feet x 4, Instruction Guide x 1	

Dimensions (mm)

PJ-1505-2CA (PJ-1505-3CA is also the same size.)



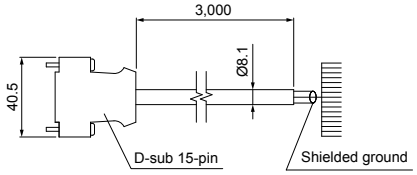
PJ-1505-2CD24 (PJ-1505-3CD24 is also the same size.)



Options

External control cable

EXCB2-B3 (3 m)



Dimensions (mm)

No.	Line color	No.	Line color
1	Black	9	Gray
2	White	10	Pink
3	Red	11	White/Black
4	Green	12	Red/Black
5	Yellow	13	Green/Black
6	Brown	14	Yellow/Black
7	Blue	15	Brown/Black
8	Purple	NC	(Blue/Black)

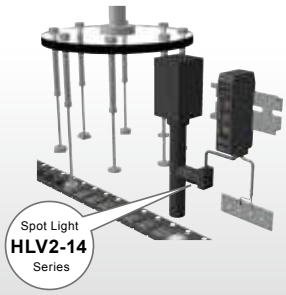
You can inquire using our website.
Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries
Inquire on our website here.
http://www.ccs-grp.com/contact/

Spot Light Dedicated
CC-PJ-0707

Refer to our website for product details.
CCS CC-PJ-0707 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

A single unit compatible with continuous, ON/OFF and strobe lighting

Perfect for narrow spaces, used together with a Spot Light to save space.



* This is a conceptual image.

CE Compliant

Characteristics

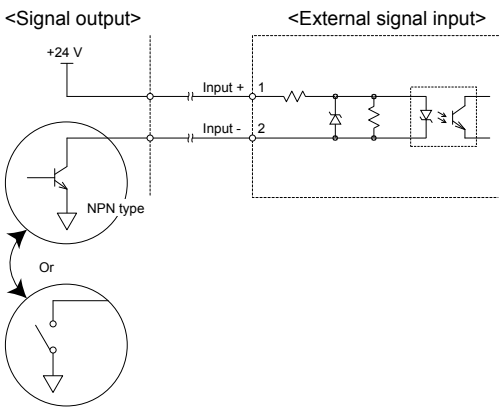
- Dedicated Control Units for the Spot Light HLV2 series. (Spot Light HLV2 series Product Page ► P. 109)
- Compact size makes them optimal for installation in narrow spaces and for saving space.
- Intensity value can be adjusted in 100 steps.
- Power supply is 24 VDC, optimal for on-site usage.

Example connections

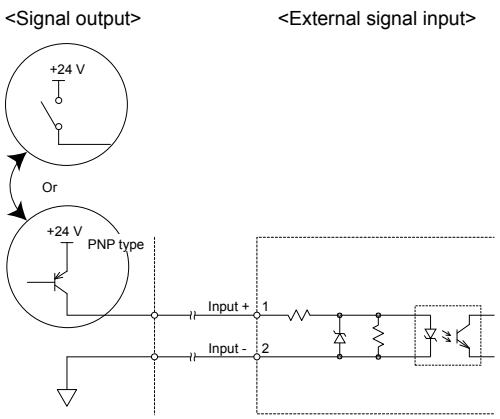
* Refer to the “Instruction Guide” for details.

External signal Example connections

Sink type



Source type



Becomes HIGH when 24 V is applied to input + and 0 V is applied to input - (applied voltage is 24 V±10%).
Apply a current using the open-collector circuit, high-speed photocoupler, semiconductor relay, and so on. (We recommend 10 mA or less.)
If using in an environment where noise is likely to occur, we recommend isolating the signal line and GND line from the drive device using a photocoupler or semiconductor relay.

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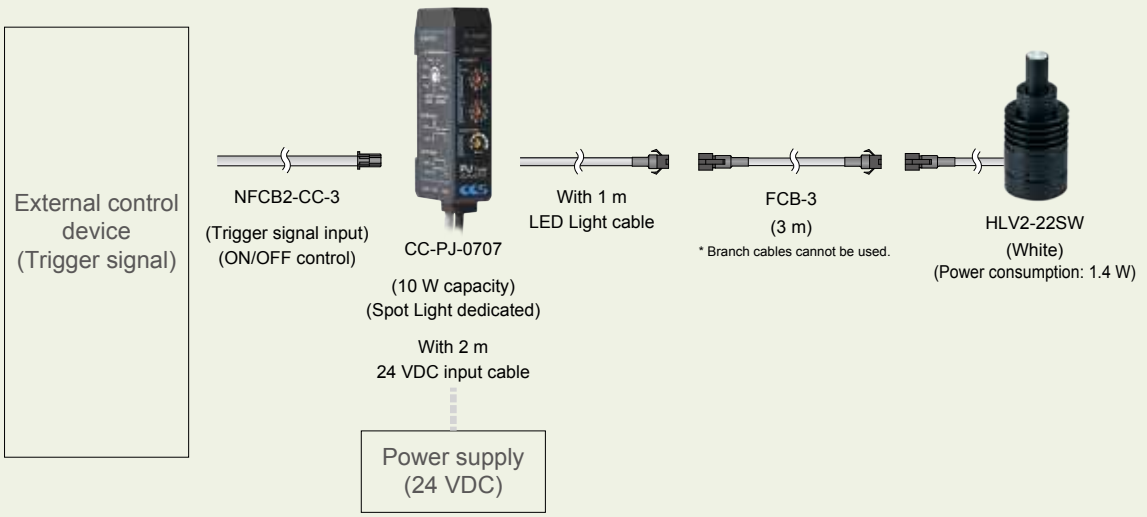
Example system configuration

Example:

External control device — **External control cable** — **Controller** — **Extension cables** — **LED Light (Spot Light)**

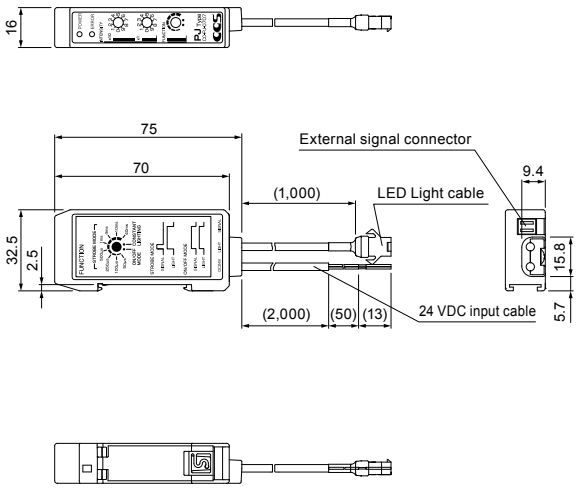
Power supply (24 VDC)



Specifications

Model name	CC-PJ-0707
Drive method	Constant-current system
Intensity control method	Variable-current control method and lighting time control
Input overcurrent protection	Overcurrent protection is provided by fuse interruption.
Input voltage	24 VDC±10%
Power consumption (typ.)	7 W (with 3 W Spot Light during max. intensity drive)
Output voltage (max.)	7 VDC
Output current (rated)	700 mA
Operating environment (indoors only)	Temperature: 0 to 40ºC, Humidity: 20% to 85%RH (with no condensation)
Storage environment	Temperature: -20 to 60ºC, Humidity: 20% to 85%RH (with no condensation)
Vibration resistance	Acceleration: 19.6 m/sec^2, Frequency: 10 to 55 Hz, Cycle: 3 min., Sweep cycle: each hour in the X, Y, and Z directions
Impact resistance	Acceleration: 49.0 m/sec^2, Operation time: 30 m sec, Repetitions: three times for each of the six directions
Cooling method	Natural air cooling
CE marking	EMC standard: EN61000-6-2/6-4 compliant
Environmental regulations	RoHS compliant
Material	ABS
Weight	100 g
Accessories	Instruction Guide x 1, flat-head screwdriver x 1

Dimensions (mm)



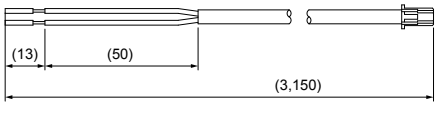
Options

External signal cable

NFCB2-CC-3 (3 m)

This cable is for use with external signals. It is used for intaking HIGH signals (during ON/OFF mode) and trigger signals (during strobe mode) into this product.

Dimensions (mm)



1: White (Input+)
2: Black (Input -)

Housing: PAP-02V-K (JST)
Contact: BPHD-002T-P0.5 (JST)

Analog Control Units (Constant Current)
PSCC(A) series

Refer to our website for product details.
CCS PSCC(A) ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

High-capacity constant current Analog Control Units

With error detection function
(Common for PSCC(A) series)
- Stopped cooling fan
- LED not lighting up

Ethernet Enabled
Adjust light intensity to 1,000 levels
Detect errors · LED failure to light · Light Unit cooling fan stop, etc.

PSCC-30048(A)
(300 W capacity)

PSCC-60048(A)
(600 W capacity)
With key-lock function
(PSCC-60048(A) only)

Renewal
New fucntions were added.

CE Compliant

The supplied AC cord is for use with 100 to 120 VAC. If you would like to use the Control Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

Characteristics

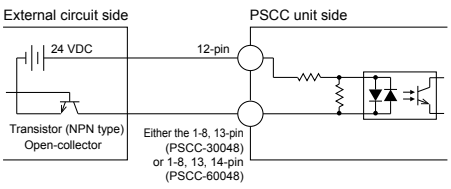
- These are high-capacity constant current Analog Control Units. There are 300 W and 600 W types.
- NEW The light intensity can be set to any of 256 or 1,000 different levels. * Parallel communications: Adjustment to 256 levels only
- NEW You can adjust the light intensity separately for each Light Unit circuit. * With Ethernet or EIA-485 communication
- External control compatible with parallel, EIA-485 and Ethernet communication using a single unit.
- The error detection function is able to detect insufficient speed or stopping of the Light Unit cooling fan and bulb burn-out errors by disconnected or shorted LED circuit.

Example connections

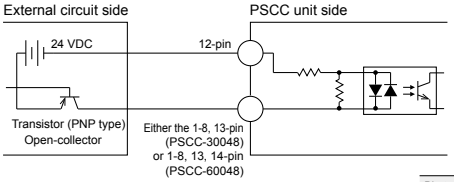
* Refer to the “Instruction Guide” for details.

Parallel communication
Example connections of external signal

Sink type



Source type



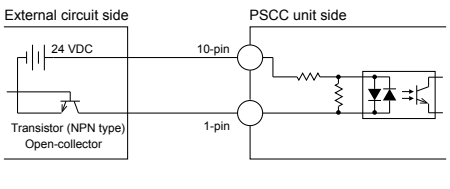
Photocoupler	Data
ON	0
OFF	1

Connection specifications					
Rated input voltage	Maximum input voltage	ON voltage/ON current	OFF voltage/OFF current	Response time	Input impedance
24 VDC	26.4 VDC	20 VDC min./6 mA min.	3 VDC max./1 mA max.	Approx. 100 ms	6.8 kΩ (per terminal)

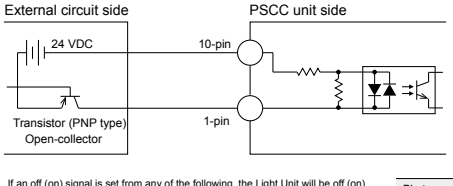
ON/OFF input
Example connections of external signal

* You can reverse the operation logic.

Sink type



Source type



If an off (on) signal is set from any of the following, the Light Unit will be off (on) regardless of the status of the other signals: ON/OFF input connector, EIA-485 communication, and Ethernet communication.
* The descriptions in the parentheses indicate the operation in the reversed logic.

Photocoupler	Light Unit status
ON	Not lit. (Lit.)
OFF	Lit. (Not lit.)

Connection specifications					
Rated input voltage	Maximum input voltage	ON voltage/ON current	OFF voltage/OFF current	Response time	Input impedance
24 VDC	26.4 VDC	20 VDC min./6 mA min.	3 VDC max./1 mA max.	Approx. 100 ms	6.8 kΩ (per terminal)

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Specifications

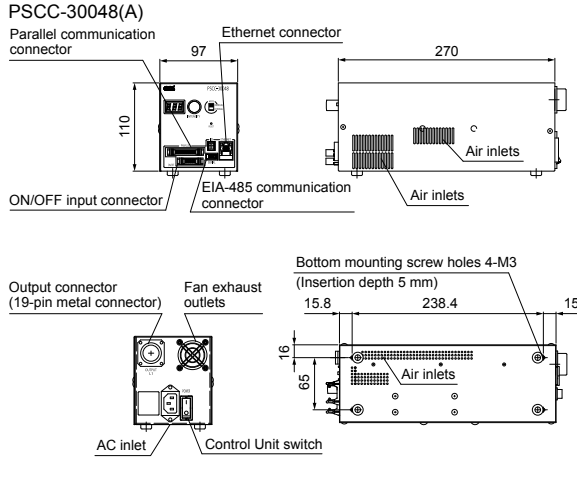
Model			PSCC-30048(A)/PSCC-60048(A)
Lighting method			Continuous lighting
Drive method			Constant-current system
Intensity control method			Variable-current control
No. of channels			1 channel
Number of circuits			PSCC-30048(A): 7 circuits max. (Light intensity can be adjusted for each Light Unit circuit.)
			PSCC-60048(A): 15 circuits max. (Light intensity can be adjusted for each Light Unit circuit.)
Applicable Light Unit (rated)			PSCC-30048: 43 VDC or less and 272 W max. (15 W max. of which is for the fan)
			PSCC-60048: 43 VDC or less and 582 W max. (30 W max. of which is for the fan)
Intensity control		Manual and external intensity	Front manual/external switch (MODE)
	Manual		Set any of 256 or 1,000 steps via the setting switch. Press and hold the switch for 2 seconds to lock the intensity value.
	External	Parallel communication	8-bit intensity value setting (B0 to B7) and write signal (WR)
		EIA-485 communication	Command input via EIA-485 communication
		Ethernet communication	Command input via TCP/IP or UDP/IP communication
		External control mode can be selected by pushing the setting switch while turning on the power.	
ON/OFF control		Parallel bit input	OFF signal (ON/OFF)
		EIA-485 communication	Command input via EIA-485 communication
		Ethernet communication	Command input via TCP/IP or UDP/IP communication
		ON/OFF logic can be selected by pushing the setting switch while turning ON the power to the Control Unit. 25H or 99H: Normal logic (default) 25L or 99L: Reversed logic	
EIA-485 communication settings		ID	Set via the front ID switch (00 to 03). Maximum of 4 connected units.
		Terminating resistance	Set via the front ID switch (terminating resistance is ON only when the ID is 00).

* Parallel communications: Adjustment to 256 levels only

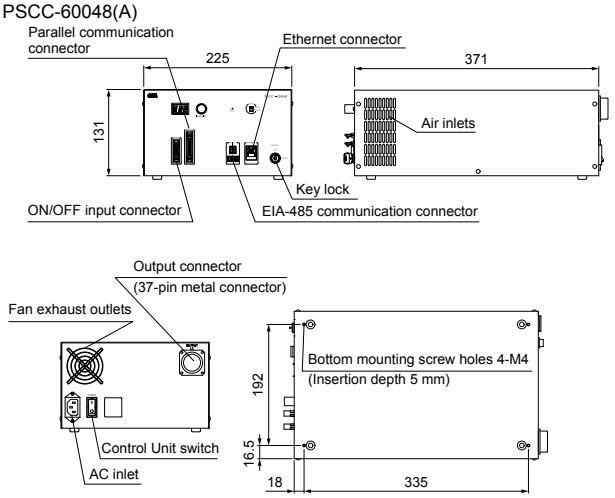
Error detection display	Burnt-out LED detection (open circuit)	"E01" is displayed on the front-panel digital display.
	Burnt-out LED detection (short circuit)	"E02" is displayed on the front-panel digital display.
	Light Unit fan speed decrease/stop detection	"F01 to F07" is displayed on the front-panel digital display (PSCC-30048(A)).
		"F01 to F15" is displayed on the front-panel digital display(PSCC-60048(A)).
	Control Unit fan speed decrease/stop detection	"E03" is displayed on the front-panel digital display.
	Light Unit communication error detection	"E04" is displayed on the front-panel digital display.
	Connector disconnection detection	"E04" is displayed on the front-panel digital display.
	Internal Control Unit error detection	"E05" is displayed on the front-panel digital display (PSCC-60048(A) only).
Error detection output	Parallel communication	Output at pins 19 and 20: Photocoupler insulation, open collector output, short circuit at alert (load current of 10 mA or less)
	EIA-485 communication	Checked by using a status command through EIA-485 communication
	Ethernet communication	Checked by using a status command through TCP/IP or UDP/IP communication
Input power supply		100 to 240 VAC (+10% - 15%), 50/60 Hz
Power consumption (typ.)		PSCC-30048(A): 360 VA, PSCC-60048(A): 750 VA
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)
Cooling method		Forced air cooling
CE marking		Safety standard: EN61010-1 compliant, EMC standard: EN61326-1 Class A compliant
Environmental regulations		RoHS compliant
Material, coating, surface processing		Steel plate, Thickness of cover: 1.0, Thickness of chassis: 1.6 (PSCC-30048(A)), 2.0 (PSCC-60048(A)), N3 leather tone finish
Weight		PSCC-30048(A): 3,100 g max., PSCC-60048(A): 7,000 g max.
Accessories		PSCC-30048(A): 3-prong AC cord with ground terminal (2 m) x 1, Instruction Guide x 1 PSCC-60048(A): 3-prong AC cord with ground terminal (2 m) x 1, Instruction Guide x 1, key x 2

Dimensions (mm)

PSCC-30048(A)



PSCC-60048(A)



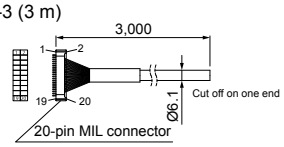
Options

These are cables for parallel and EIA-485 communication. Select yours to match your control method.

Dimensions (mm)

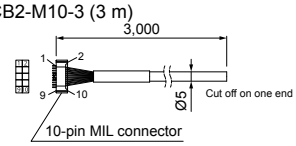
Parallel communication cable

EXCB2-M20-3 (3 m)



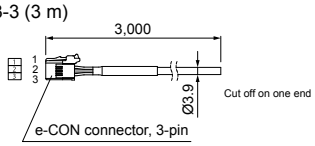
ON/OFF input cable

EXCB2-M10-3 (3 m)



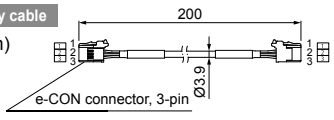
EIA-485 communication cable

EXCB2-E3-3 (3 m)



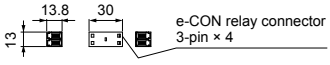
EIA-485 communication relay cable

EXCB2-E3-E3-0.2 (0.2 m)



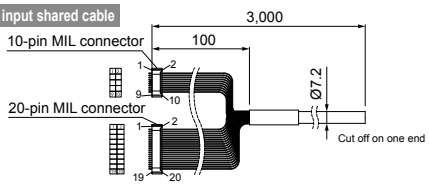
Relay connector

ECNR-E3CN4



Parallel communication / ON/OFF input shared cable

EXCB2-M10M20-3 (3 m)



* Refer to the material "Connecting EIA-485 Communications Cables" on the CCS website for information on multi-drop wiring connections. You can download this information from the product website page.

You can inquire using our website.

Requests for Light Unit Selection | Requests for Loan Products | Requests for Estimates | Requests for a Catalog | Product Inquiries | Other Inquiries

Inquire on our website here.
http://www.ccs-grp.com/contact/

Analog Control Units (Constant Voltage)

PSB3-30024

Refer to our website for product details.
CCS PSB3-30024 ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

High-capacity 300 W constant voltage Analog Control Units adjustable in 256-step intensity settings

CE Compliant

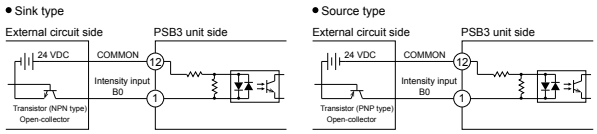
The supplied AC cord is for use with 100 to 120 VAC. If you would like to use the Control Unit with 200 to 240 VAC, you must procure another appropriate AC power cord.

Characteristics

- Light Unit output is compatible with 1 channel/4 connectors (metal connector x 2, EL connector x 2).
- Each single unit is equipped with parallel, serial and analog control for external control.
- You can select the optimal output according to the Light Unit and optimize the intensity setting by switching the intensity range.

Example connections

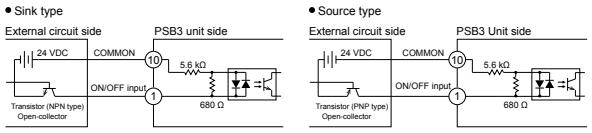
Parallel communication
Example connections of external signal



Connection specifications					
Rated input voltage	Maximum input voltage	ON voltage/ON current	OFF voltage/OFF current	Response time	Input impedance
24 VDC	26.4 VDC	20 VDC min./6 mA min.	3 VDC max./1 mA max.	Approx. 100 ms	5.6 kΩ (per terminal)

	Input signal	Photocoupler	Data
Sink type	HIGH	OFF	1
	LOW	ON	0
Source type	HIGH	ON	0
	LOW	OFF	1

ON/OFF input
Example connections of external signal



Connection specifications					
Rated input voltage	Maximum input voltage	ON voltage/ON current	OFF voltage/OFF current	Response time	Input impedance
24 VDC	26.4 VDC	20 VDC min./6 mA min.	3 VDC max./1 mA max.	Approx. 100 ms	5.6 kΩ (per terminal)

	Input signal	Photocoupler	Light Unit status
Sink type	HIGH	OFF	On
	LOW	ON	Off
Source type	HIGH	ON	Off
	LOW	OFF	On

Example system configuration

Example:
External control devices — External control cables — Control Unit — Extension cable — LED Light

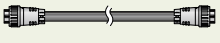
Parallel communication
EXCB2-M20-3 (Parallel communication) (Intensity control)

Trigger signal
EXCB2-M10-3 (Trigger signal input) (ON/OFF control)

EIA-485 communication
EXCB2-E6SR-3
(EIA-485 communication) (Intensity control)

Analog input
EXCB2-E6AN-3
(Analog input) (Intensity control)


PSB3-30024
(300 W capacity)


FCB-3-1.25SQ-ME7
(3 m)


LNSP-600SW
(600 mm size)
(Power consumption: 121 W)

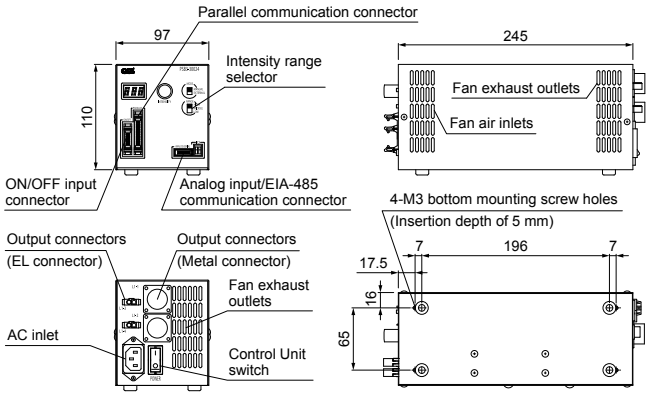
We have various materials.
PDF Drawings | DXF Drawings | 3D CAD | Instruction Guides | Product Fliers | Imaging Samples | Data Sheets | Examples of Custom Ordered Products
Download here.
http://www.ccs-grp.com/dl/

Specifications

Model			PSB3-30024
Lighting method			Continuous lighting
Drive method			Constant-voltage system
Intensity control method			Variable voltage control
No. of channels			1 channel
Applicable Light Unit (rated)			24 V 300 W
Intensity control		Manual and external intensity	Manual/External switch (MODE)
		Variable output voltage range	Select between 3 steps by using the intensity range selector (RANGE).
	Manual		Set any of 256 steps via the setting switch. Press and hold the switch for 2 seconds to lock the intensity value.
	External	Parallel communication	8-bit intensity value setting (B0 to B7) and write signal (WR)
		Serial communication	Command input via EIA-485 communication
		Analog input	Analog voltage (0 V to +5 V)
		External control mode can be selected by pushing the setting switch while turning ON the power.	
ON/OFF control		Parallel bit input	Lighting signal (OFF)
		Serial communication	Command input via EIA-485 communication
EIA-485 communication settings		ID	Set by using the ID switch (00 to 03) Connect up to four units
		Terminating resistance	Set by using the ID switch (Terminating resistance is ON only when ID = 00)
Lighting delay (typ.)			0.1 s
Error detection display			"Err" is displayed on the digital display.
Error detection output		Errors are output and light output is stopped for an internal AC power error.	
		External control Connector	Error output terminal (OC, OE), photocoupler insulation, open-collector output, alert open (load current of 10 mA or less), and error status (serial communication)

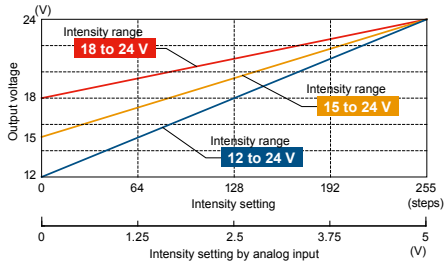
Overcurrent protection	Operates at 105% of the rated current or higher. Resets by cycling the Control Unit.
Overvoltage protection	Operates at 120% to 155% of the rated voltage. Resets by cycling the Control Unit.
Input voltage (rated)	100 to 240 VAC (±10% - 15%), 50/60 Hz
Power consumption (typ.)	410 VA
Frequency	50/60 Hz
Inrush current (typ.)	20 A/40 A (for primary/secondary values and 100 VAC), 40 A/40 A (for primary/secondary values and 240 VAC) *At cold start
Ground leakage current	3.5 mA max. (264 VAC, 60 Hz, with no load)
Output voltage variation range (typ.)	Select between 3 steps by using the intensity range selector. 12 V to 24 V *With no load 15 V to 24 V *With no load 18 V to 24 V *With no load
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)
Vibration resistance	Acceleration: 19.6 m/sec^2, Frequency: 10 to 55 Hz, Cycle: 3 min., Sweep cycle: each hour in the X, Y, and Z directions
Cooling method	Forced air cooling
CE marking	Safety standard: EN61010-1 compliant, EMC standard: EN61326-1 Class A compliant
Environmental regulations	RoHS compliant
Material, coating, surface processing	Steel plate, Thickness of cover: 1.0, Thickness of chassis: 1.6, N3 leather tone finish
Weight	2,300 g max.
Accessories	3-prong AC cord with ground terminal (2 m) x 1, Instruction Guide x 1

Dimensions (mm)



Intensity Range

Optimize your intensity setting with the intensity lower limit selection function.
You can choose an intensity range to match the Light Unit.



* The graph is a conceptual image.

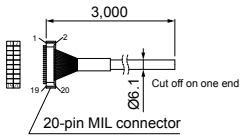
Options

These are cables for parallel communication, EIA-485 communication, and analog input. Select yours to match your control method.

Dimensions (mm)

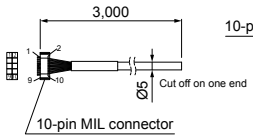
Parallel communication cable

EXCB2-M20-3 (3 m)



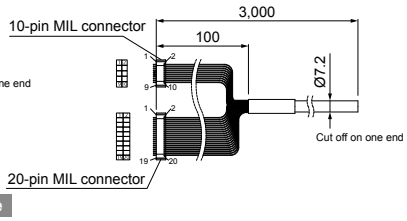
ON/OFF input cable

EXCB2-M10-3 (3 m)



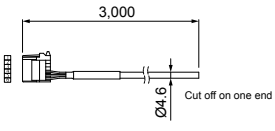
Parallel communication / ON/OFF input shared cable

EXCB2-M10M20-3 (3 m)



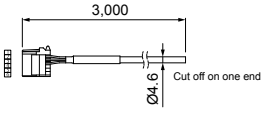
Analog input cable

EXCB2-E6AN-3 (3 m)



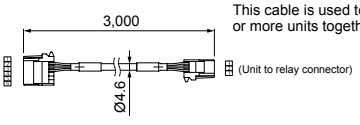
EIA-485 communication cable

EXCB2-E6SR-3 (3 m)



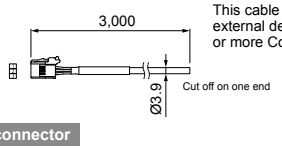
EIA-485 communication relay cable

EXCB2-E6SR-E3-3 (3 m)



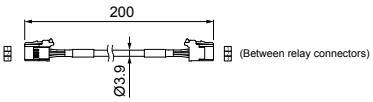
This cable is used to connect two or more units together.

EXCB2-E3-3 (3 m)



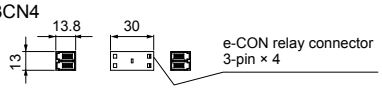
This cable is used to connect to an external device when connecting two or more Control Units together.

EXCB2-E3-E3-0.2 (0.2 m)



Relay connector

ECNR-E3CN4



*Refer to the material "Connecting EIA-485 Communications Cables" on the CCS website for information on multi-drop wiring connections. You can download this information from the product website page.

Options
Lens Filters

Refer to our website for product details.
CCS filters ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.


Sharp-cut filter


Blue filter


Polarizing filter


Ultraviolet cutting filter


Ultraviolet transmission filter

PD3 series
PD2 series
STU-3000
PSB series
POD series
PTU2 series
PB-2430-1
CC-ST-1024
BB series
PJ series
CC-PJ-0707
PSCC(A) series
PSB3-30024
Lens Filters
Diffusion Plates
Polarizing Plates
Light Control Films
Brackets
Other
Extension Cables
Control Units
Options

Sharp-cut filters

Mounted in front of a lens, the R60 series blocks light of 600 nm max., and the R64 series blocks light of 640 nm max., and both transmit the light in a wavelength longer than these.

R60 series

Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
R60-16	M16.0	P0.5	Ø18	7	Ø12
R60-25	M25.5		Ø27.5		Ø21
R60-27	M27.0		Ø28.5		Ø23
R60-30	M30.5		Ø32		Ø27

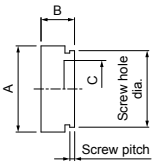
Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
R60-40	M40.5	P0.5	Ø42	7	Ø36.5
R60-46	M46.0	P0.75	Ø48		Ø41.5
R60-C	For C-mount attachment		Ø30	9	Ø20.1

R64 series

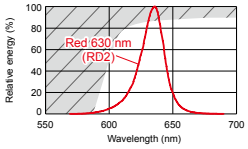
Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
R64-16	M16.0	P0.5	Ø18	7	Ø12
R64-25	M25.5		Ø27.5		Ø21
R64-27	M27.0		Ø28.5		Ø23
R64-30	M30.5		Ø32		Ø27

Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
R64-40	M40.5	P0.5	Ø42	7	Ø36.5
R64-46	M46.0	P0.75	Ø48		Ø41.5
R64-C	For C-mount attachment		Ø30	9	Ø20.1

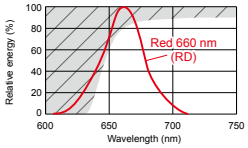
• Dimensions (mm)



Characteristics of R60 series



Characteristics of R64 series



* Light is transmitted in the white range.

Blue filters

Mounted in front of a lens, the V44 series transmits the light in a band centered on 440 nm in a blue wavelength range from 350 to 520 nm.

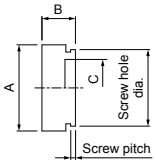
V44 series

Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
V44-25	M25.5	P0.5	Ø27.5	7	Ø21
V44-27	M27.0		Ø28.5		Ø23
V44-30	M30.5		Ø32		Ø27

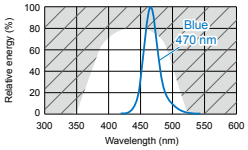
Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
V44-40	M40.5	P0.5	Ø42	7	Ø36.5
V44-46	M46.0	P0.75	Ø48		Ø41.5
V44-C	For C-mount attachment		Ø30	9	Ø20.1

* With the V44 series, you cannot attach any other filters or lens attachment rings (MR series) on the workpiece side.

• Dimensions (mm)



Characteristics of V44 series



* Light is transmitted in the white range.

Polarizing filters

These filters attach to the threading for lens filters. They eliminate reflections and glare from the surface in combination with a polarizing plate installed on the Light Unit.

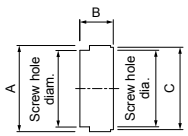
PL series

Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
PL-25	M25.5	P0.5	Ø27.4	9.3	Ø27.0
PL-25-NL	M25.5		Ø30.5	12	
PL-27	M27.0		Ø29.4	9.3	Ø28.5
PL-27-NL	M27.0		Ø32	12	
PL-30	M30.5		Ø32.4	9.3	Ø32.0

Model name	Notes		Dimensions		
	Screw hole diam.	Screw pitch	A	B	C
PL-30-NL	M30.5	P0.5	Ø32.0	12	Ø35.5
PL-40	M40.5		Ø42.4	9.3	Ø42.0
PL-40-NL	M40.5		Ø42.0	12	Ø45.0
PL-46	M46.0	P0.75	Ø48.5	9.5	Ø48.0

* "-NL" models have a lock.

• Dimensions (mm)



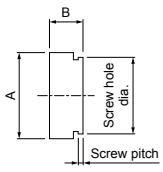
Ultraviolet cutting filters

The L42 series blocks light of 420 nm max. and transmits the light in a wavelength longer than this.

L42 series

Model name	Notes		Dimensions	
	Screw hole diam.	Screw pitch	A	B
L42-25	M25.5	P0.5	Ø27.5	6.5
L42-27	M27.0		Ø28.5	
L42-30	M30.5		Ø32	
L42-40	M40.5		Ø42	
L42-46	M46.0	P0.75	Ø48	7.2

• Dimensions (mm)



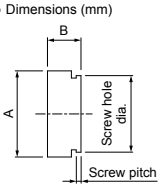
Ultraviolet transmission filters

The U-340 series transmits light in a wavelength range from approximately 280 to 380 nm centered on 340 nm.

U-340 series

Model name	Notes		Dimensions	
	Screw hole diam.	Screw pitch	A	B
U340-25	M25.5	P0.5	Ø27.5	6.5
U340-27	M27.0		Ø28.5	
U340-30	M30.5		Ø32	
U340-40	M40.5		Ø42	
U340-46	M46.0	P0.75	Ø48	7.2

• Dimensions (mm)



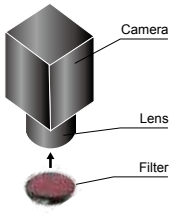
Example of usage

External imaging of candy box

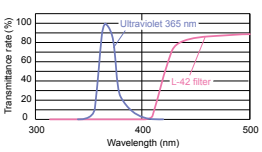

Sharp cut
No filter


Sharp cut
Using filter

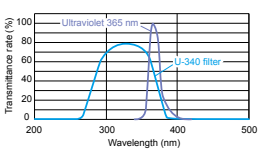
Example installation



Comparison of characteristics of ultraviolet cutting filter and light spectrum of ultraviolet LED



Comparison of characteristics of ultraviolet transmission filter and light spectrum of ultraviolet LED



Options
Diffusion Plates

Refer to our website for product details.
CCS diffusion plates ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

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


For the Ring Lights LDR2 series


For the Low-angle Ring Lights LDR2-LA series


For the Bar Lights LDL2-19X4 series LDL2-33X8 series


For the Bar Lights LDL2 series


For the Coaxial Lights LFV3 series


For the Coaxial Lights LFV3 series (End of the model name: -UF)

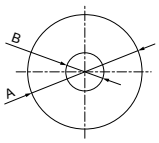
For the Ring Lights LDR2 / SQR series

Model name	Applicable Light Unit (Common for all colors)	Dimensions		
		A	B	Thickness
DF-LDR-32*	LDR2-32	Ø32	Ø9	2
DF-LDR-42*	LDR2-42	Ø42	Ø14	
DF-LDR-50*	LDR2-50	Ø50	Ø25	
DF-LDR-70	LDR2-70	Ø66	Ø35	
DF-LDR-90*	LDR2-90	Ø90	Ø40	
DF-LDR-120-45*	LDR2-120	Ø120	Ø45	
DF-SQR-56	SQR-56	Refer to the drawing		

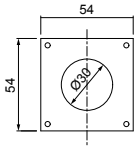
* An AD series adapter is needed when installing Light Units. (Product Page ► P. 229)

● Dimensions (mm)

DF-LDR-□□



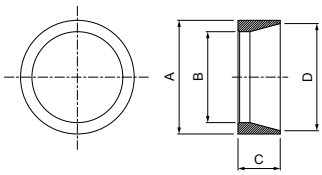
DF-SQR-56



For the Low-angle Ring Lights LDR2-LA series

Model name	Applicable Light Unit (Common for all colors)	Dimensions			
		A	B	C	D
DF-LDR-48LA	LDR2-48-LA	Ø22	Ø13	18.5	Ø21.77
DF-LDR-74LA	LDR2-74-LA	Ø48	Ø40	24	Ø50
DF-LDR-100LA	LDR2-100-LA	Ø70	Ø56	26	Ø66
DF-LDR-132LA	LDR2-132-LA	Ø98	Ø82		Ø92
DF-LDR-170LA	LDR2-170-LA	Ø133.5	Ø120		Ø130
DF-LDR-208LA	LDR2-208-LA	Ø173.5	Ø152	32	Ø174.3

● Dimensions (mm)

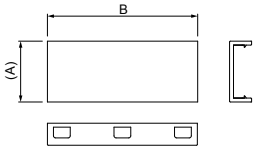


For the Bar Lights LDL2 series

Model name	Applicable Light Unit (Common for all colors)	Dimensions	
		A	B
DF-LDL2-33X8	LDL2-33X8	10.4	44
DF-LDL2-41X16	LDL2-41X16	23.2	46
DF-LDL2-80X16	LDL2-80X16		84.7
DF-LDL2-119X16	LDL2-119X16		123.7

Model name	Applicable Light Unit (Common for all colors)	Dimensions	
		A	B
DF-LDL2-74X30	LDL2-74X30	37.2	79
DF-LDL2-146X30	LDL2-146X30		150.7
DF-LDL2-218X30	LDL2-218X30		222.7
DF-LDL2-266X30	LDL2-266X30		270.7

● Dimensions (mm)

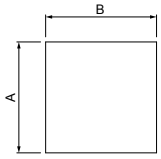


For the Coaxial Lights LFV3 series

Model name	Transmittance rate	Applicable Light Unit (Common for all colors)	Dimensions		
			A	B	Thickness
DF-LFV3-35	High	LFV3-35	34	42	2
DF-LFV3-35-UF	Low				
DF-LFV3-50	High	LFV3-50	52	56	
DF-LFV3-50-UF	Low				
DF-LFV3-50X100	High	LFV3-50X100		106	
DF-LFV3-50X100-UF	Low				
DF-LFV3-70	High	LFV3-70	73	80	
DF-LFV3-70-UF	Low				

Model name	Transmittance rate	Applicable Light Unit (Common for all colors)	Dimensions		
			A	B	Thickness
DF-LFV3-100	High	LFV3-100	100	106	2
DF-LFV3-100-UF	Low				
DF-LFV3-130	High	LFV3-130	130	138	
DF-LFV3-130-UF	Low				
DF-LFV3-200	High	LFV3-200	202	222	
DF-LFV3-200-UF	Low				

● Dimensions (mm)



Transmittance rate: High...Standard for red and white
Transmittance rate: Low (End of the model name: -UF)....Standard for blue

There are two types of diffusion plates for the Coaxial Lights LFV3 series. Select one to match your work environment as they have different transmittance rate.

Example of usage

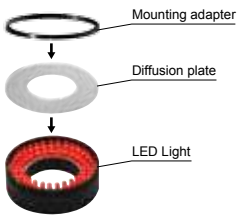
Imaging of can from above


No diffusion plate

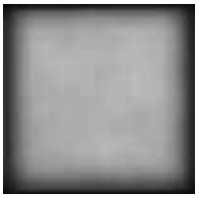

Using diffusion plate

Example installation

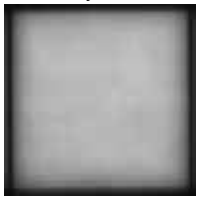
Example: Attachment of Ring Lights LDR2 series



E.g.: If changing from a low transmittance rate diffusion plate to a high one:
Intensity value 70%


Bright even though uniformity is low.

E.g.: If changing from a high transmittance rate diffusion plate to a low one:
Intensity value 75%


Brightness decreases as uniformity is increased.

Caution	Diffusion plates are consumables. Heat may cause deformation or discoloring depending on the use environment. Make sure that countermeasures against overheating are implemented and that the temperature does not exceed the operating limit.

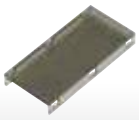
Options
Polarizing Plates

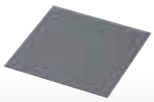
Refer to our website for product details.
CCS polarizing plates ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.

They eliminate reflections from the surface in combination with a polarizing filter.


For the Ring Lights LDR2 series


For the Bar Lights LDL2-19X4 series LDL2-33X8 series


For the Bar Lights LDL2 series


For the Coaxial Lights LFV3 series


For the Spot Lights LSP series

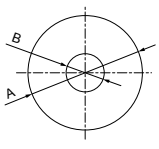
For the Ring Lights LDR2 / SQR series

Model name	Applicable Light Unit (Common for all colors)	Dimensions A	Dimensions B	Dimensions Thickness
PL-LDR-32*	LDR2-32	Ø32	Ø9	0.8
PL-LDR-42*	LDR2-42	Ø42	Ø14	
PL-LDR-50*	LDR2-50	Ø50	Ø26	
PL-LDR2-70	LDR2-70	Ø76	Ø35	
PL-LDR-90*	LDR2-90	Ø90	Ø40	
PL-LDR-120-40*	LDR2-120	Ø120	Ø40	
PL-SQR-56	SQR-56	Refer to the drawing		

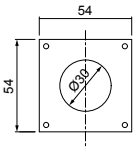
* An AD series adapter is needed when installing Light Units. (Product Page ► P. 229)

● Dimensions (mm)

PL-LDR-□□

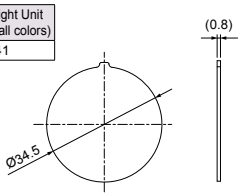


PL-SQR-56



For the Spot Lights LSP series

Model name	Applicable Light Unit (Common for all colors)
PL-LSP-41	LSP-41

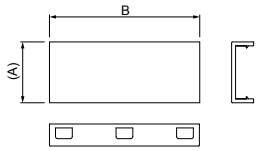


For the Bar Lights LDL2 series

Model name	Applicable Light Unit (Common for all colors)	Dimensions A	Dimensions B
PL-LDL2-33X8-HO	LDL2-33X8	10.4	44
PL-LDL2-33X8-VE			
PL-LDL2-41X16	LDL2-41X16	23.2	46
PL-LDL2-41X16-VE			
PL-LDL2-80X16	LDL2-80X16		84.7
PL-LDL2-80X16-VE			
PL-LDL2-119X16	LDL2-119X16		123.7
PL-LDL2-119X16-VE			

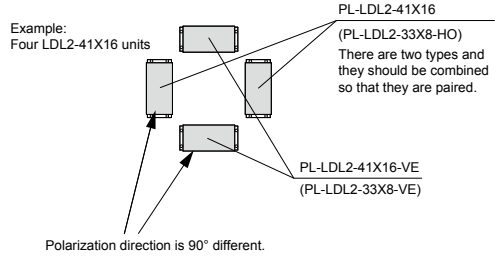
Model name	Applicable Light Unit (Common for all colors)	Dimensions A	Dimensions B
PL-LDL2-74X30	LDL2-74X30	37.2	79
PL-LDL2-74X30-VE			
PL-LDL2-146X30	LDL2-146X30		150.7
PL-LDL2-146X30-VE			
PL-LDL2-218X30	LDL2-218X30		222.7
PL-LDL2-218X30-VE			
PL-LDL2-266X30	LDL2-266X30		270.7
PL-LDL2-266X30-VE			

● Dimensions (mm)

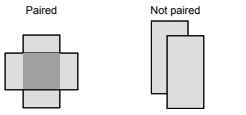


There are two types of polarizing plates for the Bar Lights LDL2 series. They are used together as shown below.

Mounted to illuminate from all four directions:



● Distinguishing paired polarizing plates



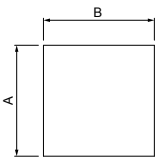
Placing paired polarizing plates over each other in a cross shape makes them appear black.

They do not appear black when placed over each other in a parallel manner.

For the Coaxial Lights LFV3 series

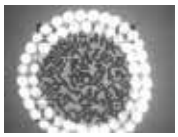
Model name	Applicable Light Unit (Common for all colors)	Dimensions A	Dimensions B	Dimensions Thickness
PL-LFV3-35	LFV3-35	34	42	0.8
PL-LFV3-50	LFV3-50	52	56	
PL-LFV3-50X100	LFV3-50X100	52	106	
PL-LFV3-70	LFV3-70	73	80	
PL-LFV3-100	LFV3-100	100	106	
PL-LFV3-130	LFV3-130	130	138	
PL-LFV3-200	LFV3-200	202	222	

● Dimensions (mm)



Example of usage

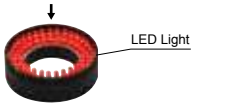
Imaging of QR code


No polarizing plate


Using a polarizing plate

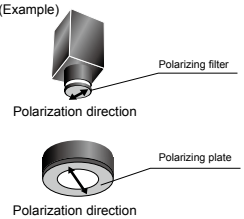
Example installation

Example: Attachment of Ring Lights LDR2 series



● The polarizing filters and plates are used together.

(Example)



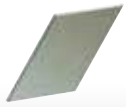
Adjustment procedures for polarizing plates and polarizing filters

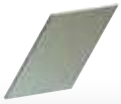
Specular reflective components are cut out and the effects can be observed when the polarization direction of the polarizing plate installed on the Light Unit and the polarization direction of the filter attached to the camera are at a right angle (90°) to each other.

Caution	Polarizing plates are consumables. Heat may cause deformation or discoloring depending on the use environment. Make sure that countermeasures against overheating are implemented and that the temperature does not exceed the operating limit.

Options
Light Control (LC) Film

Refer to our website for product details.
CCS LC film ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.


For the Flat Lights TH series


For the Coaxial Lights LFV3 series

For the Flat Lights TH series

The parallelism of light is improved to reduce light diffraction for performing external inspection of workpieces, and provide sharp imaging of profiles.

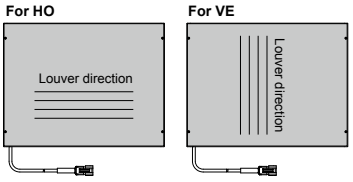
Model name	Applicable Light Unit (Common for all colors)	Dimensions		
		A	B	Thickness
LC-TH-27X27-HO	TH-27X27	39	29	0.63
LC-TH-27X27-VE				
LC-TH-43X35-HO	TH-43X35	47	45	
LC-TH-43X35-VE				
LC-TH-51X51-HO	TH-51X51	63	53	
LC-TH-51X51-VE				
LC-TH-63X60-HO	TH-63X60	72	75	
LC-TH-63X60-VE				
LC-TH-83X75-HO	TH-83X75	87	95	
LC-TH-83X75-VE				
LC-TH-100X100-HO	TH-100X100	112	112	
LC-TH-100X100-VE				

Model name	Applicable Light Unit (Common for all colors)	Dimensions		
		A	B	Thickness
LC-TH-140X105-HO	TH-140X105	117	152	0.63
LC-TH-140X105-VE				
LC-TH-160X120-HO	TH-160X120	132	172	
LC-TH-160X120-VE				
LC-TH-200X150-HO	TH-200X150	162	212	
LC-TH-200X150-VE				
LC-TH-211X200-HO	TH-211X200	212	223	
LC-TH-211X200-VE				
LC-TH-224X170-HO	TH-224X170	182	236	
LC-TH-224X170-VE				

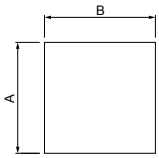
The Flat Lights TH series offers a selection of long or short louver directions.

Model names ending with HO:
The direction of louvers is horizontal when attaching with the cable outlet facing downwards as shown in the drawing.

Model names ending with VE:
The direction of louvers is vertical when attaching with the cable outlet facing downwards as shown in the drawing.



● Dimensions (mm)

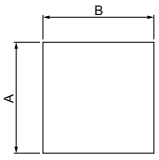


For the Flat Lights LFL series

The parallelism of light is improved to reduce light diffraction for performing external inspection of workpieces, and provide sharp imaging of profiles.

Model name	Applicable Light Unit (Common for all colors)	Dimensions		
		A	B	Thickness
LC-LFL-100	LFL-100	120	132	0.63
LC-LFL-180	LFL-180	176.8	213.8	
LC-LFL-200	LFL-200	222	234	

● Dimensions (mm)

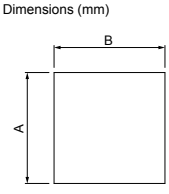


For the Coaxial Lights LFV3 series

The parallelism of light is improved and the particularities of a workpiece can be effectively imaged.

Model name	Applicable Light Unit (Common for all colors)	Dimensions		
		A	B	Thickness
LC-LFV3-35	LFV3-35	34	42	0.63
LC-LFV3-50	LFV3-50	52	56	
LC-LFV3-50X100	LFV3-50X100	52	106	
LC-LFV3-70	LFV3-70	73	80	
LC-LFV3-100	LFV3-100	100	106	
LC-LFV3-130	LFV3-130	130	138	
LC-LFV3-200	LFV3-200	202	222	

● Dimensions (mm)



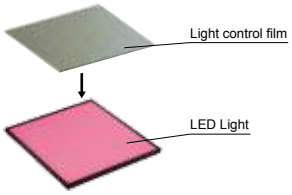
Example of usage

External imaging of a metal rod


No light control film Using light control film

Example installation

Example: Attachment of the Flat Lights TH series



Caution	LC film is a consumable. Heat may cause deformation or discoloring depending on the use environment. Make sure that countermeasures against overheating are implemented and that the temperature does not exceed the operating limit.

Options
Brackets

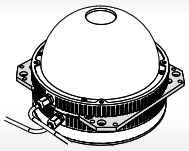
Refer to our website for product details.
CCS brackets ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.


For the Bar Lights LDL2 series


For the Bar Lights LDL2-33X8


For the Bar Lights LDL2 series


For the Flat Lights TH series


Light joint bracket

For the Bar Lights LDL2 series

The angle of illuminating can be adjusted as you desire when securing the Light Unit.

L-model bracket

Model name	Applicable Light Unit (Common for all colors)
BK-LDL2	For the LDL2 series

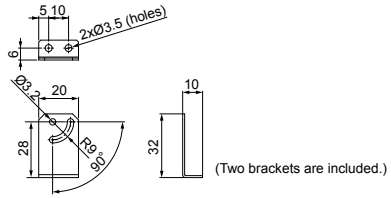
Four-way mounting brackets

Model name	Applicable Light Unit (Common for all colors)
BK-LDQ2-33X8	For LDL2-33X8

Model name	Applicable Light Unit (Common for all colors/Four-unit use)	Dimensions A	Dimensions B
BK-LDQ2-41X16	LDL2-41X16 series	108	60
BK-LDQ2-80X16	LDL2-80X16 series	148	100
BK-LDQ2-119X16	LDL2-119X16 series	186	138
BK-LDQ2-74X30	LDL2-74X30 series	150	100
BK-LDQ2-146X30	LDL2-146X30 series	222	172
BK-LDQ2-218X30	LDL2-218X30 series	294	244
BK-LDQ2-266X30	LDL2-266X30 series	342	292

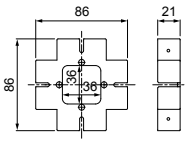
● Dimensions (mm)

BK-LDL2

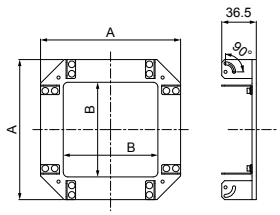


(Two brackets are included.)

BK-LDQ2-33X8



BK-LDQ2



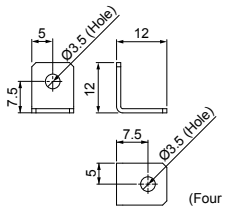
For the Flat Lights TH series

This is a dedicated bracket for securing the TH Series Light Units. You can secure TH Series Light Units at four points.

Model name	Applicable Light Unit (Common for all colors)
BK-TH-LE12	For the TH series

● Dimensions (mm)

BK-TH-LE12



(Four brackets are included.)

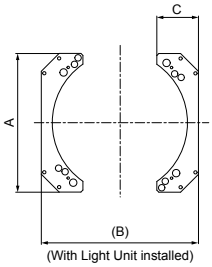
Light joint brackets

You can combine Dome and Ring Lights. Imaging can be performed by lighting switching or simultaneous lighting.

Model name	Applicable Light Unit 1 (Common for all colors)	Applicable Light Unit 2 (Common for all colors)	Dimensions A	B	C	Thickness
BK-75-JO	HPD2-75 series	Used for all HPR2-75 colors	84	91	35	4
		Used for all LDR2-100-LA colors				
		Used for all LDR-96-LA1 colors				
BK-100-JO	HPD2-100 series	Used for all HPR2-100 colors	106	116	32	
		Used for all LDR2-132-LA colors				
		Used for all LDR-146-LA1 colors				
BK-150-JO	HPD2-150 series	Used for all HPR2-150 colors	140	166	42	
		Used for all LDR2-170-LA colors				
		Used for all LDR-176-LA1 colors				
BK-200-JO	HPD2-200 series	Used for all HPR2-200 colors	170	216	52	
		Used for all LDR2-208-LA colors				
		Used for all LDR-206-LA1 colors				
BK-250-JO	HPD2-250 series	Used for all HPR2-250 colors	210	266	56	

● Dimensions (mm)

BK-75-JO
BK-100-JO
BK-150-JO
BK-200-JO
BK-250-JO

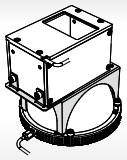


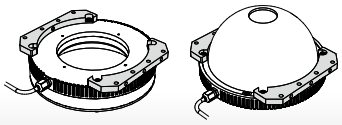
(With Light Unit installed)

Caution	Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.

Options
Brackets

Refer to our website for product details.
CCS brackets ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.


Coaxial Light joint bracket


Expansion mounting bracket

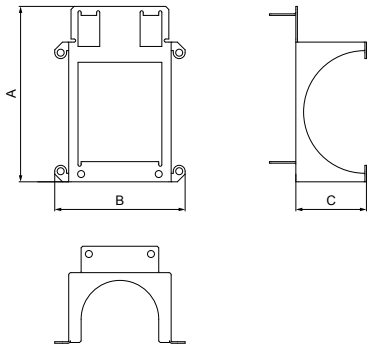
Coaxial Light joint brackets

You can combine Dome and Coaxial Lights. Uniform illumination can be provided from all directions.
Irregular illuminating is eliminated.

Model name	Applicable Light Unit 1 (Common for all colors)	Applicable Light Unit 2 (Common for all colors)	Dimensions		
			A	B	C
BK-HPD2-75-LFV	HPD2-75 series	LFV3-35 series	95	66	33
BK-HPD2-100-LFV	HPD2-100 series	LFV3-50 series	113	84	45.5
BK-HPD2-150-LFV	HPD2-150 series		129.5	119	70.5
BK-HPD2-200-LFV	HPD2-200 series	LFV3-70 series	164	155	95.5
BK-HPD2-250-LFV	HPD2-250 series		200	190	116.5

● Dimensions (mm)

BK-HPD2-75-LFV
BK-HPD2-100-LFV
BK-HPD2-150-LFV
BK-HPD2-200-LFV
BK-HPD2-250-LFV



Expansion mounting brackets

These brackets are for expanding the mounting methods of Light Units. You can mount on horizontal as well as vertical surfaces.

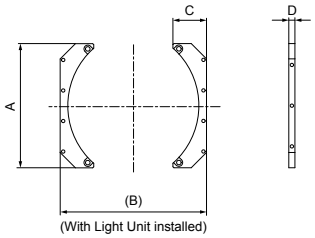
Model name	Applicable Light Unit 1 (Common for all colors)	Dimensions			
		A	B	C	D
BK-50-CI	HPR2-50 series	40	50	13	5
BK-75-CI	HPD2-75 series	70	91	22	6
	HPR2-75 series				
BK-100-CI	HPD2-100 series	90	116	25	
	HPR2-100 series				
BK-150-CI	HPD2-150 series	122	166	33	
	HPR2-150 series				
BK-200-CI	HPD2-200 series	160	216	40	
	HPR2-200 series				
BK-250-CI	HPD2-250 series	210	266	60	
	HPR2-250 series				

● Example of the expansion mounting bracket in use


Ring Light: Image of usage with the HPR2-200RD

● Dimensions (mm)

BK-50-CI
BK-75-CI
BK-100-CI
BK-150-CI
BK-200-CI
BK-250-CI



(With Light Unit installed)

● Example of the expansion mounting bracket in use


Dome Light: Image of usage with the HPD2-250SW

Caution	Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.

Options
Other

Refer to our website for product details.
CCS options ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.


Protective plate
CV series


Adapter
AD series


Lens attachment rings
MR series


FA series


JP-LDL2

Fixtures

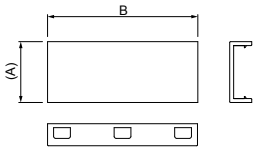
Protective plates

Protects the emitting part of the Light Unit. * It is not intended to protect against dust or water.

CV series

Model name	Applicable Light Unit (Common for all colors)	Dimensions A	Dimensions B
CV-LDL2-41X16	LDL2-41X16	23.2	46
CV-LDL2-80X16	LDL2-80X16		84.7
CV-LDL2-119X16	LDL2-119X16		123.7
CV-LDL2-74X30	LDL2-74X30	37.2	79
CV-LDL2-146X30	LDL2-146X30		150.7
CV-LDL2-218X30	LDL2-218X30		222.7
CV-LDL2-266X30	LDL2-266X30		270.7

● Dimensions (mm)



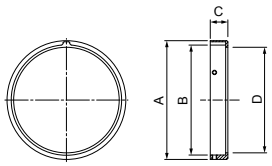
Adapters

Use when installing a diffusion plate or polarizing plate to the Light Unit.

AD series

Model name	Applicable Light Unit (Common for all colors)	Dimensions A	Dimensions B	Dimensions C	Dimensions D
AD-LDR-32	Common for LDR2-32	Ø32.2	Ø28	7	Ø36
AD-LDR-42	Common for LDR2-42	Ø42.2	Ø38		Ø46
AD-LDR-50	Common for LDR2-50	Ø54	Ø50.2	8	Ø48
AD-LDR-90	Common for LDR2-90	Ø96	Ø90.2		Ø84
AD-LDR-120	Common for LDR2-120	Ø126	Ø120		Ø114

● Dimensions (mm)



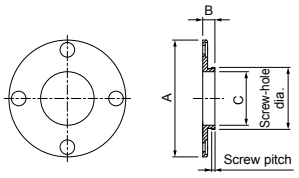
Lens attachment rings

You can directly install the Light Unit to the screw section for the lens filter.
Perfect for environments with narrow installation spots.

MR series

Model name	Applicable Light Unit (Common for all colors)	Notes Screw hole dia.	Notes Screw pitch	Dimensions A	Dimensions B	Dimensions C
MR-LDR-32-M25	Common for LDR2-32	M25.5	P0.5	Ø36	10	Ø12
MR-LDR-32-M27		M27				
MR-LDR-32-M30		M30.5				
MR-LDR-50-M25	Common for LDR2-50	M25.5		Ø48	5	Ø22
MR-LDR-50-M27		M27				Ø24
MR-LDR-50-M30		M30.5				Ø27

● Dimensions (mm)



Fixtures

These fixtures are optimal for workpiece testing and temporary setting.

FA series

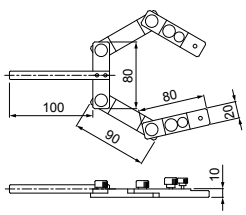
Model name	Notes
FA-10	Rod part Ø10 mm
FA-12	Rod part Ø12 mm

JP-LDL2 series

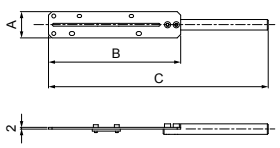
Model name	Notes	Dimensions A	Dimensions B	Dimensions C
JP-LDL2-LE70WT20	Rod part Ø12 mm	20	71	171
JP-LDL2-LE100WT30		30	101	201
JP-LDL2-LE150WT30		30	151	251

● Dimensions (mm)

FA-10/12



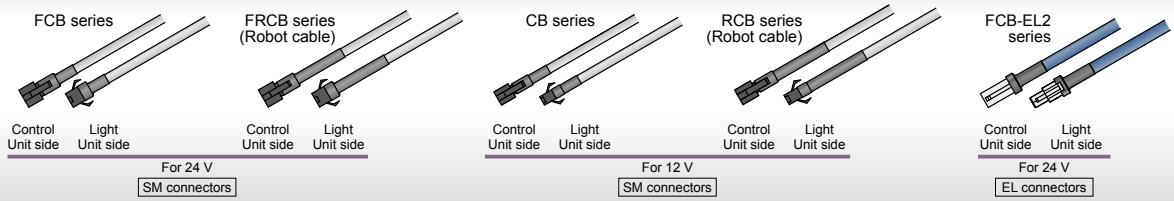
JP-LDL2



Caution	Be sure to read the "Instruction Guide" included with the product before use and observe cautionary information.

Options
Extension Cables

Refer to our website for product details.
CCS cables ▶ Search
Use a search engine.
You can also use your smartphone or cell phone.



SM Connector Type

Note: The cable permitted bending radii shown below are for reference only. Actual values may vary.

Straight cables

This extension cable connects an LED Light and Control Unit.

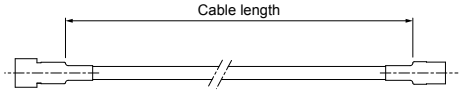
For 24 V/HLV series

Model name	Cable length	Notes
FCB-1	1 m	Used for 24 V input LED Lights or the HLV2 series Spot Lights, and 24 V output Control Units.
FCB-2	2 m	
FCB-3	3 m	
FCB-5	5 m	

For 12 V

Model name	Cable length	Notes
CB-1	1 m	Used for 12 V input LED Lights and 12 V output Control Units.
CB-2	2 m	
CB-3	3 m	
CB-5	5 m	

● Dimensions (mm)



24 V/HLV series cable permitted bending radius: 28.8 mm
12 V cable permitted bending radius: 27.6 mm

2-branch cables

* Spot Light HLV2 series cannot be used.

This 2-branch cable connects two LED Lights and a Control Unit.

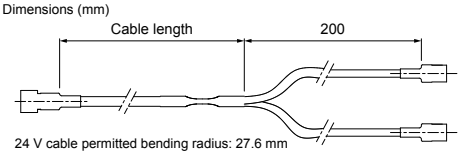
For 24 V

Model name	Cable length	Notes
FCB-W-1	1 m	Used for 24 V input LED Lights and 24 V output Control Units.
FCB-W-2	2 m	
FCB-W-3	3 m	
FCB-W-5	5 m	

For 12 V

Model name	Cable length	Notes
CB-W-1	1 m	Used for 12 V input LED Lights and 12 V output Control Units.
CB-W-2	2 m	
CB-W-3	3 m	
CB-W-5	5 m	

● Dimensions (mm)



24 V cable permitted bending radius: 27.6 mm
12 V cable permitted bending radius: 27.6 mm

4-branch cables

* Spot Light HLV2 series cannot be used.

This 4-branch cable connects four LED Lights and a Control Unit.

For 24 V

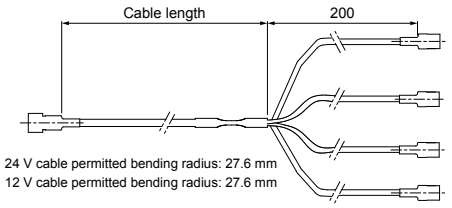
Model name	Cable length	Notes
FCB-F-1	1 m	Used for 24 V input LED Lights and 24 V output Control Units.
FCB-F-2	2 m	
FCB-F-3	3 m	
FCB-F-5	5 m	

For 12 V

Model name	Cable length	Notes
CB-F-1	1 m	Used for 12 V input LED Lights and 12 V output Control Units.
CB-F-2	2 m	
CB-F-3	3 m	
CB-F-5	5 m	

* Total power consumption of the connected Light Units must not exceed the output of the Control Unit. CCS recommends using a multi-channel Control Unit if you wish to set intensity separately for each Light Unit.

● Dimensions (mm)



24 V cable permitted bending radius: 27.6 mm
12 V cable permitted bending radius: 27.6 mm

Robot cables

These robot cables have excellent flexibility and durability.

For 24 V/HLV series

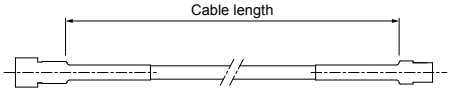
Model name	Cable length	Notes
FRCB-1	1 m	Used for 24 V input LED Lights or the HLV2 series Spot Lights, and 24 V output Control Units.
FRCB-2	2 m	
FRCB-3	3 m	
FRCB-5	5 m	

For 12 V

Model name	Cable length	Notes
RCB-1	1 m	Used for 12 V input LED Lights and 12 V output Control Units.
RCB-2	2 m	
RCB-3	3 m	
RCB-5	5 m	

* If using robot cables, affix the cable section on the Light Unit side (including the connector section).

● Dimensions (mm)



24 V/HLV series cable permitted bending radius: 28.8 mm
12 V cable permitted bending radius: 27.6 mm

EL Connector Type

Note: The cable permitted bending radii shown below are for reference only. Actual values may vary.

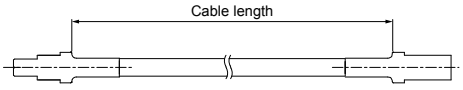
Straight cables

This extension cable connects an LED Light and Control Unit.

For 24 V

Model name	Cable length	Model name	Cable length	Notes
FCB-1-EL2	1 m	FCB-5-EL2	5 m	Use for LED Lights and Control Units that have an EL connector.
FCB-2-EL2	2 m	FCB-10-EL2	10 m	
FCB-3-EL2	3 m	FCB-15-EL2	15 m	

● Dimensions (mm)



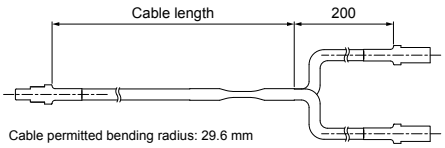
Cable permitted bending radius: 29.6 mm

2-branch cables

This 2-branch cable connects two LED Lights and a Control Unit.

For 24 V

Model name	Cable length	Model name	Cable length	Notes
FCB-W-1-EL2	1 m	FCB-W-5-EL2	5 m	Use for LED Lights and Control Units that have an EL connector.
FCB-W-2-EL2	2 m	FCB-W-10-EL2	10 m	
FCB-W-3-EL2	3 m	FCB-W-15-EL2	15 m	



Cable permitted bending radius: 29.6 mm

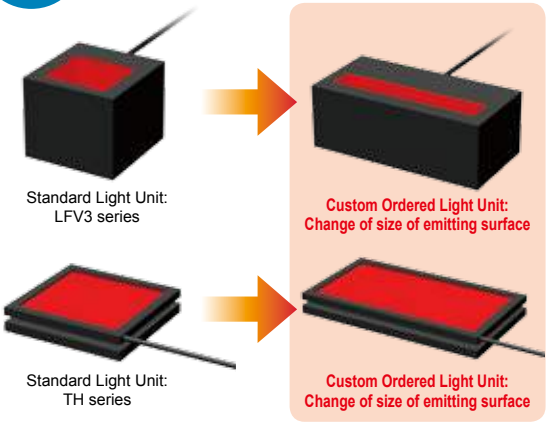
Caution	The light intensity might be unstable if you join cables for a length over 5 m.

Recommended Custom Ordered Products

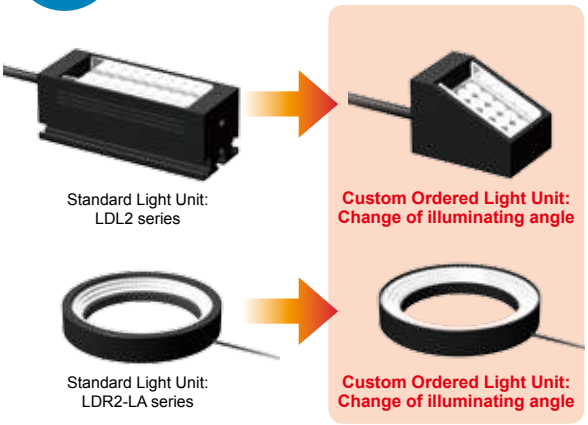
Size Change | Change to Illuminating Angle | Shape Change | Increased Brightness

Please feel free to consult with us about anything else.

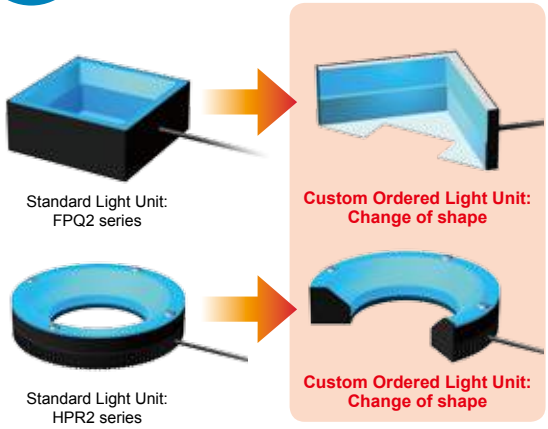
CASE.1 **With a standard product, there are no Light Units with a length or thickness that is suitable for the workpiece or device**



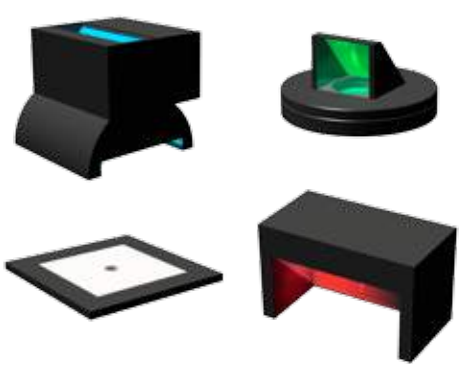
CASE.2 **When the size is good but you want to illuminate at a different angle**



CASE.3 **With a standard product, light is irradiated up to the unnecessary part and contrast drops**



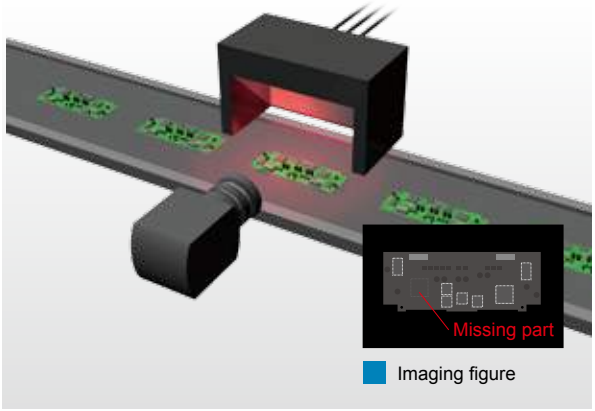
CASE.4 **Examples of other custom ordered items**



We suggest Light Units that are optimal for your inspection procedures and environment

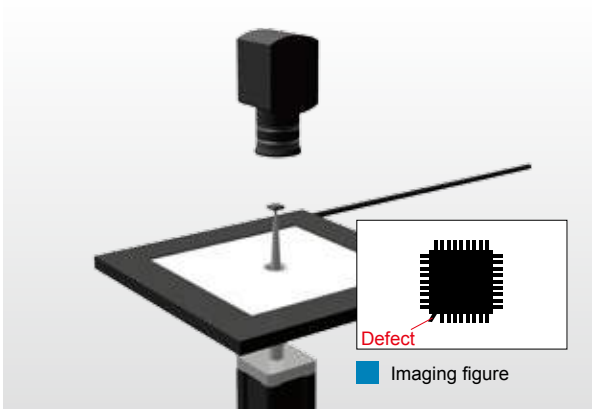
Light Units for External Inspection of Electronic Parts on Circuit Boards

The Light Unit design is optimized to match your desired camera position or split imaging. Changing the position of the irradiation port of Coaxial Lights and distributed control of the emitting surface are achieved.



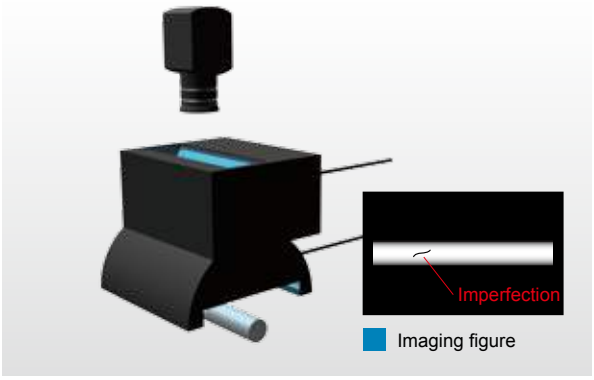
Light Units for External Inspection of Minute Electronic Parts

Creating a hole in the center of a Flat Light provides a passage for the operating section of a suction nozzle. This can be used for external inspection of electronic parts held by suction at the tip.



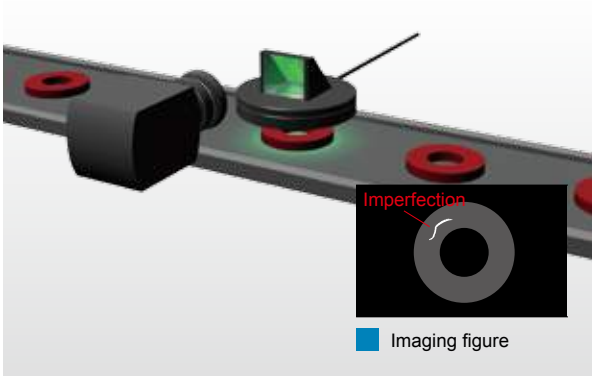
Light Units for Damage Inspection of Metal Rods

You can combine Coaxial and Dome Lights to create an optimal configuration for imaging using line sensor cameras. They can be used for damage inspection of metal rods with glossy surfaces.



Light Units for External Inspection of Metal Parts

Light Unit design is optimized to match your camera installation requirements.
Allows for the combining of a mirror with a low-angle Ring Light.



Examples of Items That Can be Custom Ordered

Light Unit

- Size
- Width and thickness
- Brightness
- Illuminating mechanism
- Wavelength and color temperature
- Mounting position and securing method
- Cable length
- Connector format

Other products

- Changes in specifications of Control Unit
- Changes in cable specifications
- Optional products can also be custom ordered.

* Please feel free to inquire about anything else that is not mentioned above.

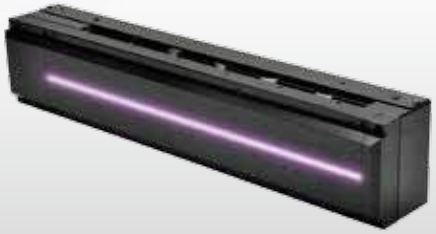
Flow of Custom Orders

Inquiry ▶ Specifications study (Verification of required specifications; Verification of product realization; Proposal of approximate costs) ▶ Design procedures (Specifications fixed; Drawing creation) ▶ Proposal of specifications and costs (Dimensions; Specifications; Estimate) ▶ Order ▶ Production, inspection and shipping (Production procedures; Inspection performed; Shipping procedures) ▶ Delivery

High-Output UV-LED Lights

Example of line-type product

Example of area-type product

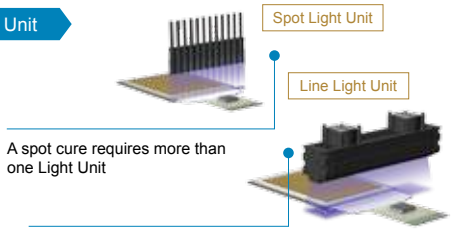


Example of spot-type product

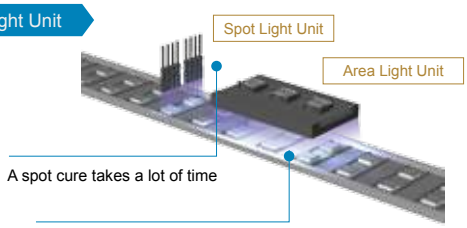
New Solutions Provided by Area Cures (Wide Range)

You can use area and line lights to efficiently illuminate wide-range areas that are difficult to illuminate using spot lights.
The area cure serves to reduce man-hours as well as the number of Light Unit.

Line Light Unit



Area Light Unit



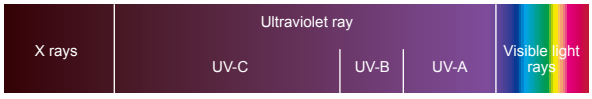
Custom Orders

Based on the technology we have accumulated producing Light Units for image processing, we can provide high-output UV-LED Lights that meet a wide variety of requirements.
To meet those requirements, we have our standard line and area type lights, and can provide any other shape or format by custom order.

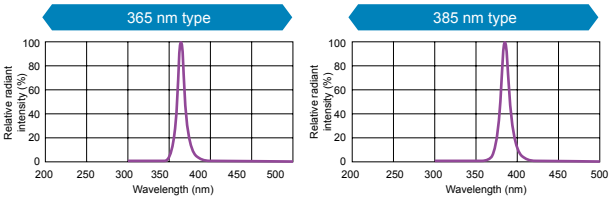
Illuminating example

Range Covered by CCS's UV-LED Lights

A beam of a 100 to 400 nm wavelength is a short ray of ultraviolet light with extremely strong energy.
CCS's UV-LED Lights can provide ultraviolet irradiation in the range of ultraviolet ray known as UV-A.



We offer 365 nm and 385 nm lights in the UV-A wavelength range.



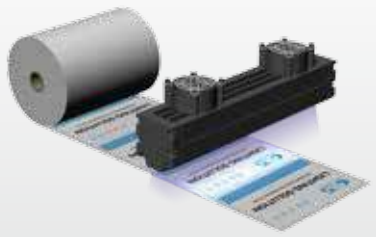
Examples of Use of Ultraviolet Curing

You can use area and line lights to efficiently illuminate wide-range areas that are difficult to illuminate using spot lights.
The area cure serves to reduce man-hours as well as the number of Light Unit.

Curing of Label and Sticker Ink

UV ink curing

Line type

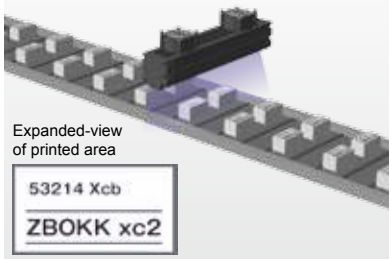


Labels and stickers

Curing of Electronic Parts Printing

Printing ink drying

Line type



Electronic part (relays)

Curing of Label and Sticker Ink

UV ink curing and surface coating

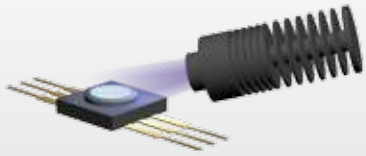
Area type

CD and DVD discs

Camera Lens Adhering

Curing adhesive

Spot type

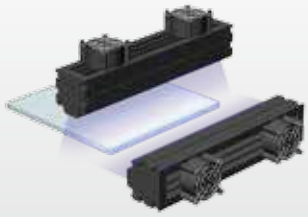


Lens units

Adhering and Sealing Panels

Gluing together of panels

Line type

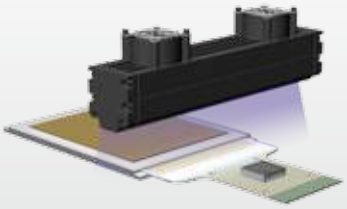


Panels

Electronic Parts Adhering

Adhering of liquid crystals and substrates

Line type



Liquid crystal substrates

Merits of Ultraviolet Irradiation Using LEDs

Reduce system size

Our LED systems consist only of LED Lights and Control Units, allowing you to create a compact system.

Reduced running costs

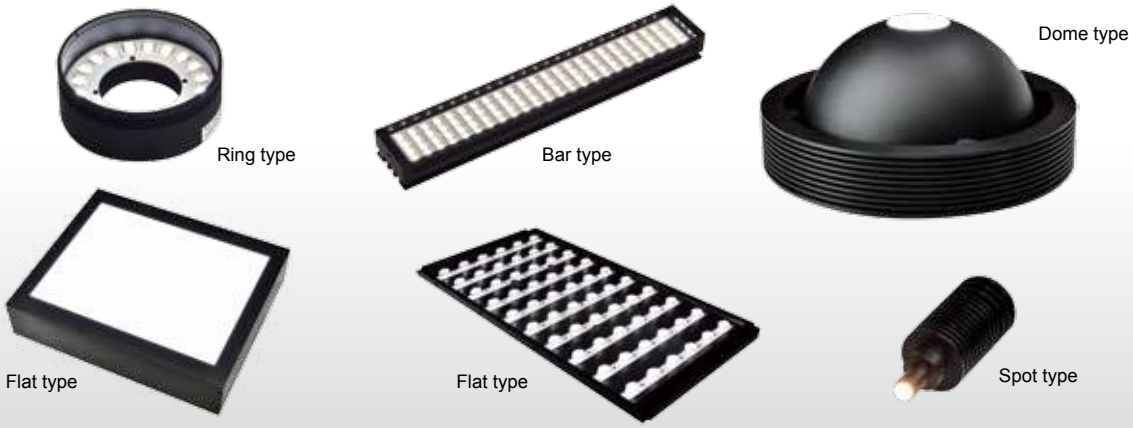
Due to the long service life of LEDs, lamp replacement costs and replacement labor times are reduced, as well as management man-hours.

Great responsiveness and stability

The excellent ON/OFF responsiveness of LED Lights allow for illuminating control that matches the given medium.

High Color Rendering (Natural-Light) LED Lights

Color determining inspection | Colorimetric inspection | Color evaluation inspection and other applications

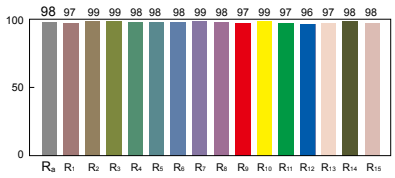


What are High Color Rendering (Natural-light) LED Lights?

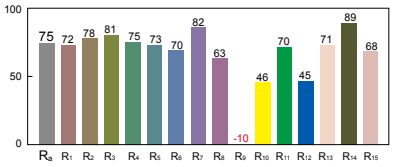
Achievement of the Industry's Highest General Color Rendering Index at Ra 98*1

CCS's high color rendering (natural-light) LED Lights use our specially developed LEDs that reproduce natural-light colors that are close to standard light sources (such as sunlight or white light bulbs). At Ra 98, we have achieved one of the LED field's highest general color rendering index (CRI), demonstrating just how close the light is to sunlight. Additionally, even when the light color is changed, our unique technology makes it possible to maintain a CRI of Ra 95 or more. In addition to the high general CRI, CCS has also achieved high special CRI values, such as those for primary colors and flesh tones. Specifically for red (R_9), yellow (R_{10}) and blue (R_{12}), you can see colors rendered to a level that was not possible for previous light sources.*2

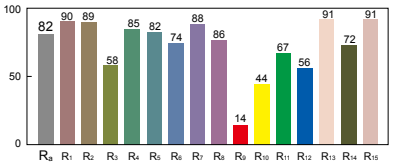
Example of high color rendering (natural-light) LED [correlated color temperature: 5,000 K]



Example of regular white LED [correlated color temperature: 5,000 K]



Example of three-wavelength fluorescent light (daylight) [Correlated color temperature: 5,000 K]



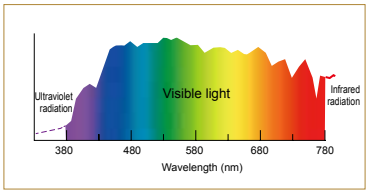
*1: Current as of our in-house inspection in January 2016.

*2: A color rendering index is used to evaluate the ability to render each of 15 colors against a standard value of 100.
General color rendering index Ra: Avg. value of R_1 to R_8
Special color rendering index Ri: Individual evaluation of colors R_1 to R_{15} (evaluation gives precedence to R_9 to R_{15}). (According to JIS Z 8726, "Method of Specifying Colour Rendering Properties of Light Sources".)

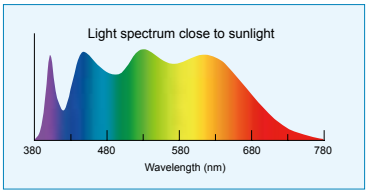
Light Spectrum Characteristics Close to Sunlight

High color rendering (natural-light) LEDs produce a smooth continuous light spectrum characteristics across all wavelengths that is similar to the light spectrum of sunlight. While normal white LEDs and fluorescent lights have some wavelength regions that are very strong or even missing, CCS's high color rendering LEDs cover almost the entire range of visible light.

Example of light spectrum of sunlight

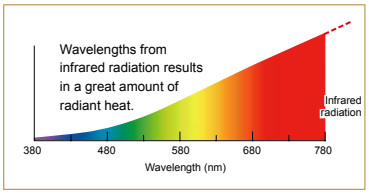


Example of light spectrum of high color rendering (natural-light) LEDs

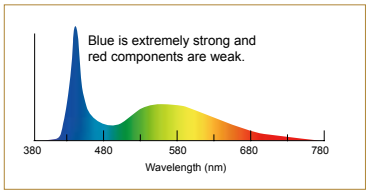


Light spectrum of other light sources

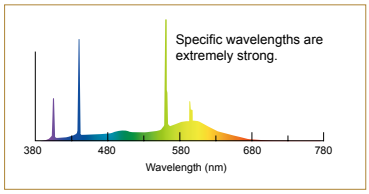
Example of light spectrum of halogen bulb



Example of light spectrum of regular white LED light



Example of light spectrum of three-wavelength fluorescent light



What are Color Rendering Properties?

"Color rendering" refers to how the way the colors of an object are affected when a light or other light source illuminates said object, and "color rendering properties" are the light source properties that determine how the colors of the object will appear.
In general, a "good light source of color rendering properties" refers to a light source that can faithfully reproduce the color tint when illuminated by a standard light source* with the same correlated color temperature.
In Japan, the color rendering indices (Ri and Ra) are defined according to JIS standards and the way objects appear are expressed numerically with a maximum of 100. The higher the value is, the closer the colors of the object appear to the natural colors.

* Refers to sunlight (CIE daylight), white light bulb light and similar types of light.

Comparison of color rendering properties

High color rendering (natural-light) LED Light

Standard white LED

Tuning the Correlated Color Temperature and Light Spectrum

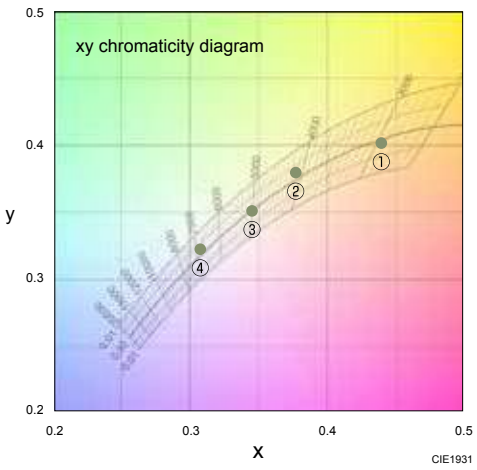
With CCS's high color rendering (natural-light) LED Lights, the correlated color temperature and light spectrum can be tuned to fit customer needs. We can provide the ideal LED Lights with our completely integrated manufacturing system from LED device development through final product manufacturing.

Tuning Examples

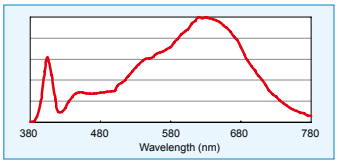
- Correlated color temperature close to illuminant A (2,856 K)
- Correlated color temperature close to illuminant D65 (6,504 K)
- Correlated color temperature of 5,500 K
- Correlated color temperature of 2,700 or 5,000 K
- Light spectrum with few green wavelength components
- Products to prevent variations in chromaticity

Our specially developed high color rendering (natural-light) LED devices

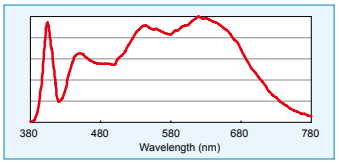
Example of tuning the correlated color temperature and light spectrum



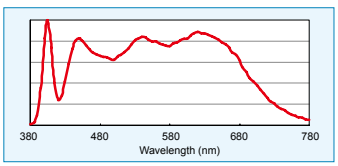
① Correlated color temperature: 2,800 K, General color rendering index: Ra 97



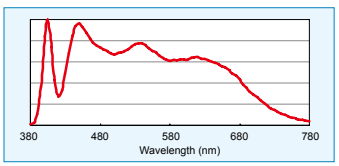
② Correlated color temperature: 4,000 K, General color rendering index: Ra 97



③ Correlated color temperature: 4,700 K, General color rendering index: Ra 97



④ Correlated color temperature: 6,500 K, General color rendering index: Ra 97



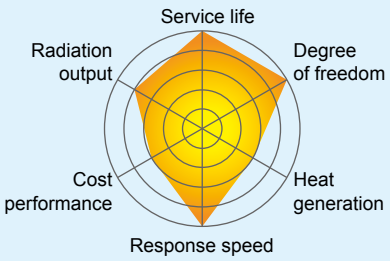
Y axis: Relative radiant intensity

LED Characteristics

- High degree of freedom in lighting design
- Long service life
- Fast response
- Selectable color
- Low total running cost

Comparison of Light Sources for Image Processing

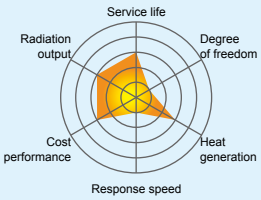
LED



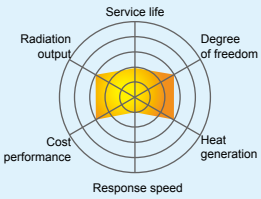
The characteristics of LED Lights are that they are compact, save energy, and have a long service life and a high degree of design freedom. Using LED Lights allows for lighting design that is optimal for various workpieces (samples).

Other main light sources

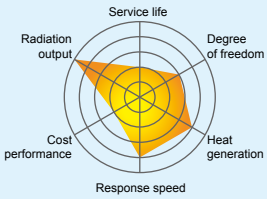
Fluorescent lamp



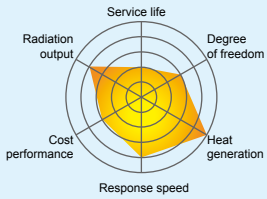
Halogen bulb



Xenon lamp



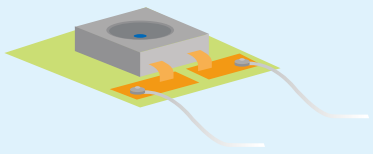
Metal halide



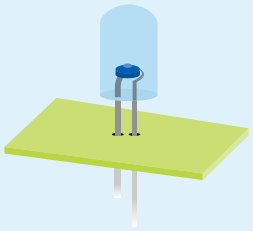
LED Type

Although the emitting principles are basically the same, they are available in the following types of shapes.

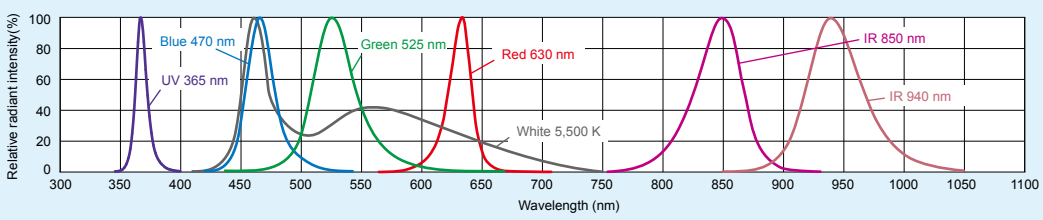
Surface-mounted (high-watt)



Cannonball shape (low-watt)



Light Spectrum (representative sample of the products in this catalog)



Skillful Use of LED Lights

The service life of LED Lights is shorter at high temperatures

Using LEDs at high temperatures for an extended period of time will cause them to deteriorate and the radiation output will decline. (The normal radiation output will not return even after they cool down.)

How to prevent LED deterioration and reduction in radiation output due to heat generated by LEDs

Avoid using at the maximum intensity

When used with a low Control Unit intensity value, the Light Unit is supplied with a lower amount of current, which therefore reduces the heat given off as well as LED deterioration. As a guideline, we recommend that you set the intensity value low at first and then turn it up gradually as the radiant output of the Light Unit decreases.

Turn on the light only when capturing images

LED Lights can withstand being turned on and off frequently. Turning on the Light Unit only when taking images using a strobe emitting or external signal input will reduce heat generation, provide a more stable radiation output, and increase the service life of the Light Unit.

Important Points of LED Lights

LED service life

Unlike a light bulb, an LED Light does not burn out suddenly but rather gradually deteriorates. Replace when captured images are dark and increasing the intensity value does not improve the conditions.

LED variations

LED Lights have different individual radiant quantities. There are also differences in the emitted color.

Wavelength shift

The LED emission spectrum varies due to ambient temperature and heat generated when energized. Temperature rising causes a shift towards the long-wavelength side.

Items You Must Check when Selecting a Light Unit

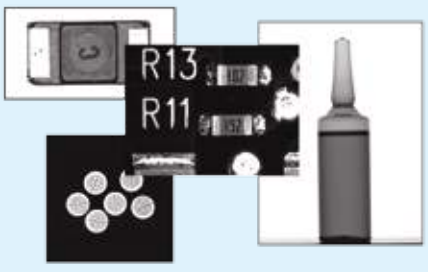
Workpiece (sample) shape, conditions, color and related items

Applications

External inspection	Part count inspection
Character recognition	Liquid volume inspection
Foreign material inspection	Detection inspection
Dimension measurement	Code recognition

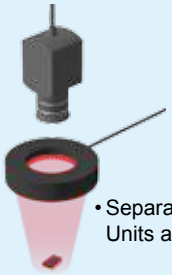
Etc.

Large field of view (resolution)



Installation conditions and ambient environment

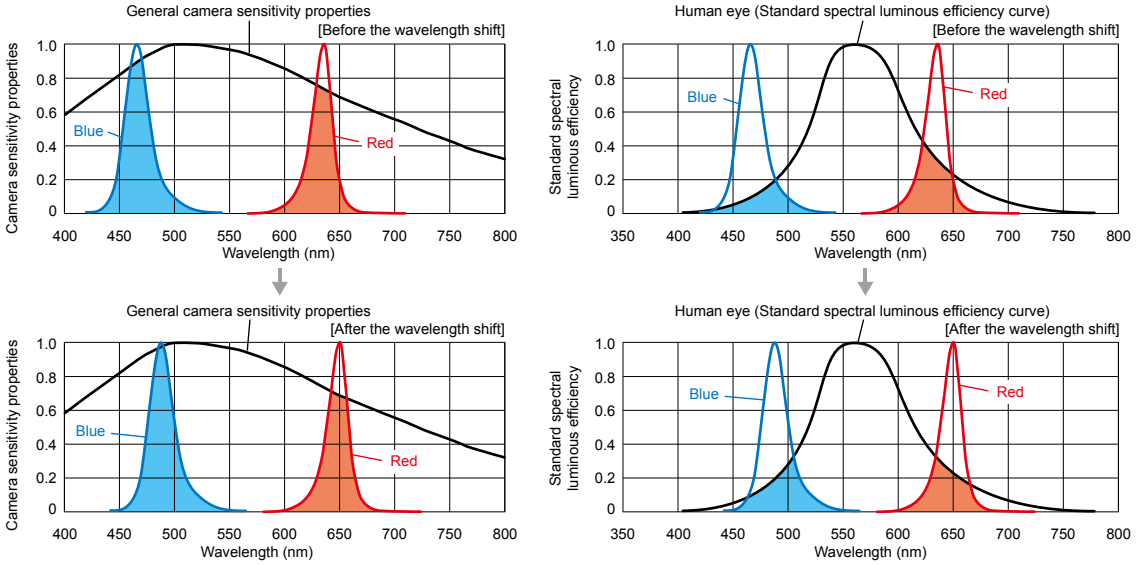
- Production line conveyor speed
- Types of surrounding devices and similar items



- Separation of Light Units and workpiece

Changes in Brightness Due to Camera and the Human Eye

By only slightly shifting the wavelength of blue or red, the value for the human eye (illuminance and luminance) changes greatly.



Determining the Field of View of Coaxial Lighting

Figure 1 shows a cross-section of a Coaxial Light. Light from the LED is reflected using a half-mirror, so that the position of the emitting surface can be treated as if it were directly behind the mirror (See “Virtual emitting surface” in the figure). In this case, the distance from the emitting surface to the workpiece is LWD'.
The effective field of view of a Coaxial Light is determined by 1) the LWD (distance from the Light Unit to the workpiece) and 2) the WD (distance from the workpiece to the camera). Figure 2 shows how to determine the field of view "V" when the WD is held constant and the LWD (distance to the Light Unit) is varied. The following is an explanation of what the effective field of view will be when the virtual emitting surface is at positions A and B.
In the case of position A, if we assume that the workpiece is a reflecting surface, we can say that there is an emitting surface at A opposite to the workpiece (position A' of the LWD'a distance). Therefore, when the workpiece is viewed through the camera, it appears as if the emitting surface is at A', and thus the effective field of view is Va.
In the same way, in the case of B, the emitting surface is at B' and the effective field of view is Vb. Comparing Va to Vb, we find that Va, which has a shorter LWD, has a greater effective field of view. In this way, the effective field of view grows larger as the LWD becomes smaller.

What is the effective field of view?

For example, when reading characters engraved on a shiny piece of metal, if we assume that the virtual emitting surface is at position B, the effective field of view of Vb will be determined, in regards to the camera field of view V as shown in Figure 3 below, by the virtual emitting surface position B'. For this reason, only the letters CDEFG will be visible as dark letters against a light background, and the letters AB and HI, which appear dark against a dark background, will not be discernible. In this way, the effective field of view Vb is smaller than the field of view V.

Figure 1. Cross-section of Coaxial Light

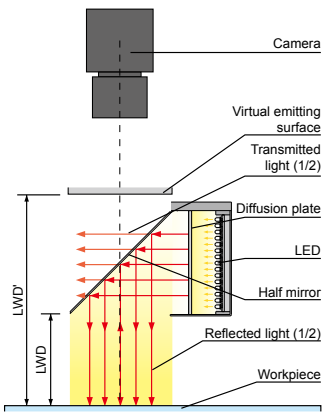


Figure 2. Determining the field of view by LWD

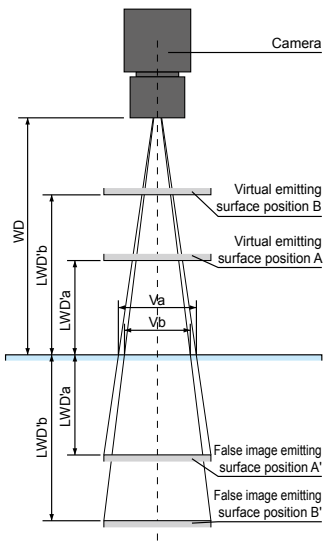
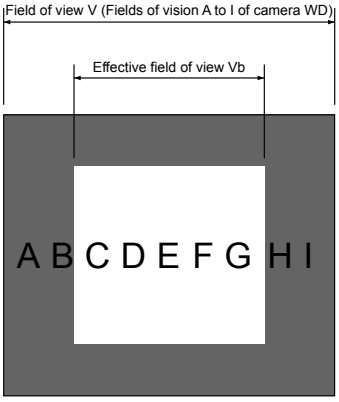


Figure 3. Field of view and effective field of view

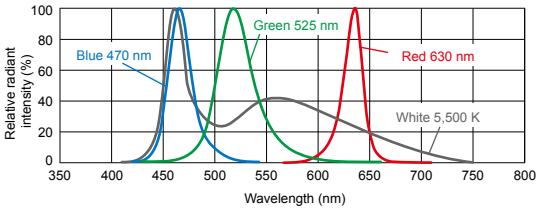


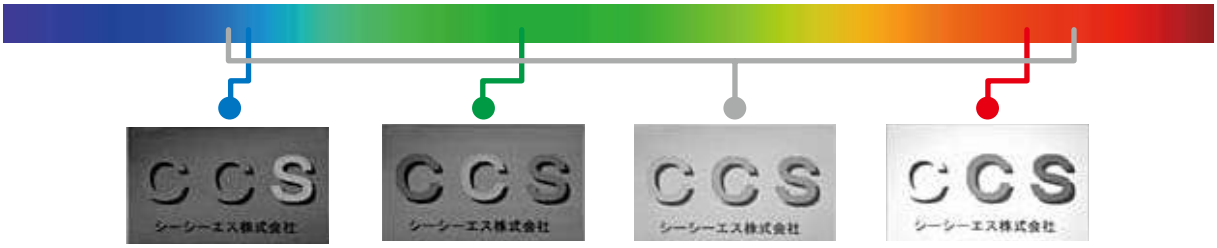
Objects Appear Differently Depending on the Emitted Color of a Light Unit

Imaged sample workpiece (printed card)

Background ——— Orange
Left-side C ——— Red
Center C ——— Green
S ——— Blue
Shadow and kana/kanji characters — Black

Light spectrum of colored LEDs (representative sample)





Imaging with Blue

When using blue lighting, parts that are the same color as the lighting become white and other colors become black.

Imaging with Green

Although, when using green lighting, there are some variations in color strength, green (same color as the lighting), as well as orange, yellow and blue all become white. The remaining red-colored area become black.

Imaging with White

As white lighting covers all three primary colors (red, blue and green), color brightness is even resulting in all colors appearing as gray with the same brightness. By comparing with other imaging, it is apparent that there is little strength of color. If using white lighting when imaging with a color camera or when imaging a multicolored workpiece, it is possible to perceive the particularities of the workpiece as their are no effects from color.

Imaging with Red

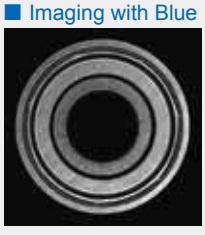
When using red lighting, parts that are the same color as the light (red) as well as orange and yellow become white and other colors (green and blue) become black. This is due to the property of the light expressed as, "Color reflects light of similar colors and absorbs light of complementary colors."

(Using a monochrome camera)

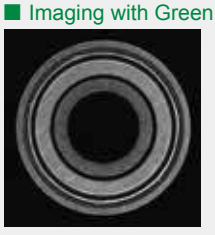
Example of workpieces which don't relate to the emitted color

Imaged sample workpiece
Metal (bearing)

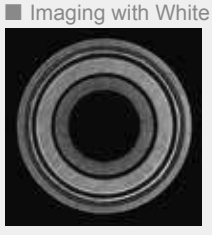
Imaging with Blue



Imaging with Green

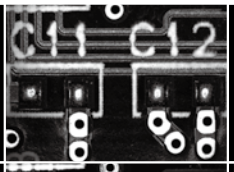
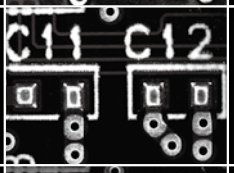
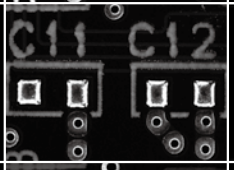
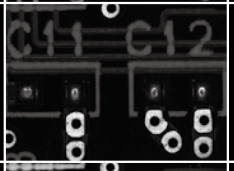
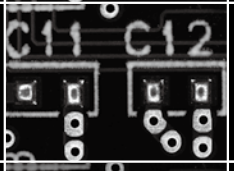
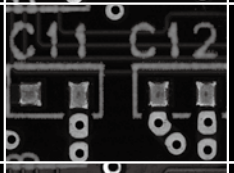
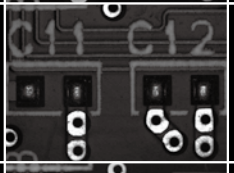
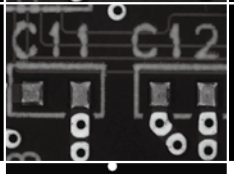
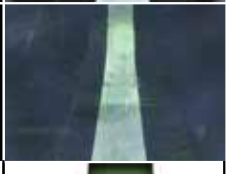
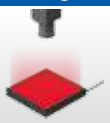


Imaging with White



Imaging with Red

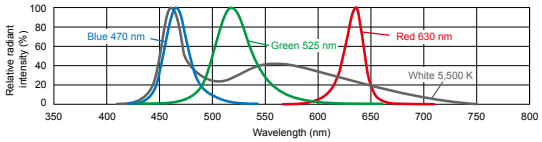
Imaging Differs Depending on the Combination of the Light Unit and Workpiece

Light Unit in use \ Imaged workpiece	Metal part (automotive part)	Circuit board (electronic part)	Can (food)	PET bottle (drink)
Ring Lights				
 **LDR2** series ▶ P.11				
 **LDR2-LA** series ▶ P.15				
 **LDR-LA1** series ▶ P.19				
 High-angle **HPR2** series ▶ P.29				
 Low-angle **HPR2** series ▶ P.29				
Coaxial Lights				
 **LFV3** series ▶ P.83				
Dome Lights				
 **HPD2** series ▶ P. 71				
Flat-Dome Lights				
 **LFX2** series ▶ P. 79				
Flat Lights				
 **TH** series ▶ P. 63				
Bar Lights				
 **LDL2** series ▶ P.43				

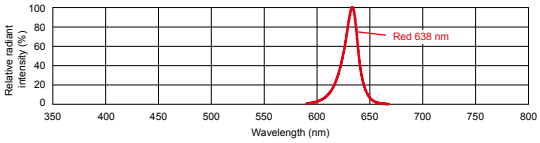
There are great differences in imaging results depending on the shape of the Light Unit, emitted color, illuminating method and similar conditions.
Please inquire with CCS so that we can use our vast knowledge and experience to help you with imaging.

LED Properties: Light Spectrum
(part not described on each product page)

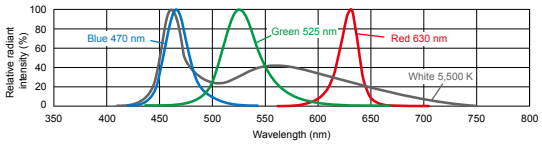
SQR series
Product Page ► P. 23



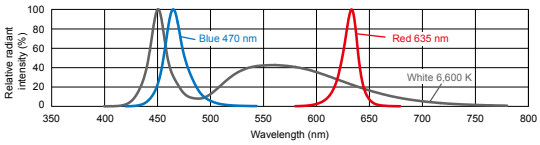
SQR-TP series
Product Page ► P. 24



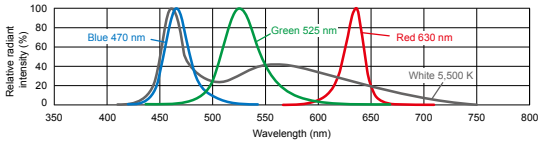
LFR series
Product Page ► P. 33



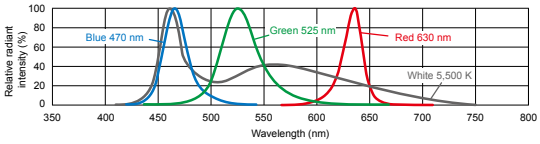
TH series
Product Page ► P. 63



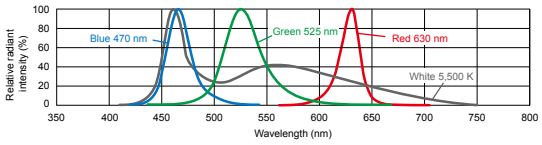
LFL series
Product Page ► P. 67



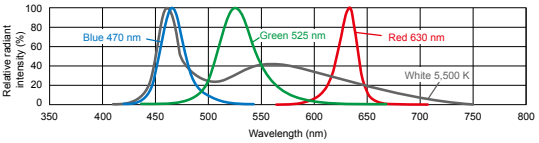
LAV series
Product Page ► P. 77



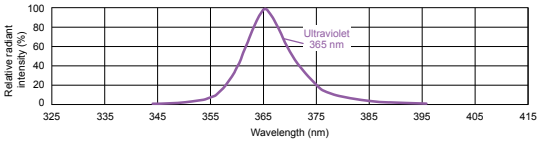
PDM series
Product Page ► P. 78



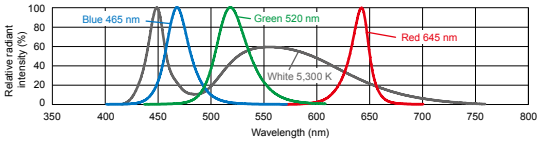
MSU series
Product Page ► P. 89



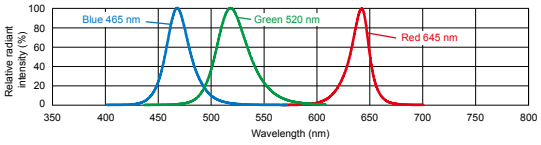
UV2 series
Product Page ► P. 93



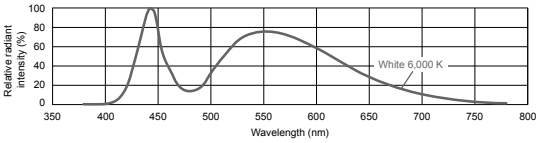
HLV2-22-NR-3W series
Product Page ► P. 117



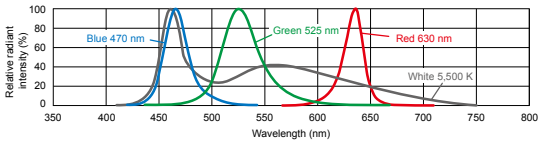
HLV2-3M-RGB-3W
Product Page ► P. 118



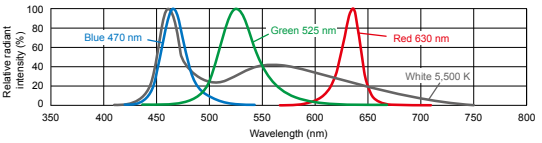
PFB2 series
Product Page ► P. 121



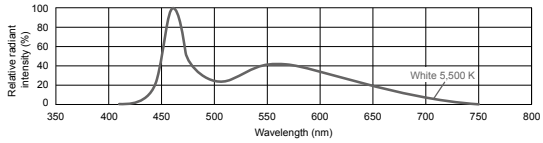
LV series
Product Page ► P. 113



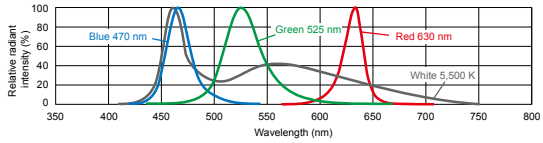
LN series
Product Page ► P. 137



LN-HK series
Product Page ► P. 138

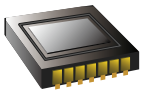
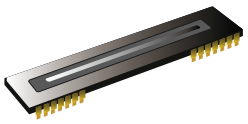


LNV series
Product Page ► P. 157

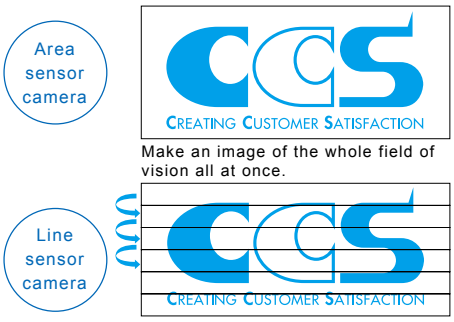


Basic line sensor camera knowledge

1 Differences between area sensor cameras and line sensor cameras

	Area sensor camera	Line sensor camera
Shape of imaging element		
Lens mount	C mount, F mount, etc.	F mount, M72 mount, etc.
Pixel expression	2M (1,600 × 1,200 pix)	8 K (8,192 pix)
Capture expression	Shutter speed 1/4,000 (250 µsec) 1/60 (16.67 msec)	Charge storage time 4,000 Hz (250 µsec) 1,000 Hz (1 msec)

Imaging methods for the area sensor camera and the line sensor camera (Conceptual image)



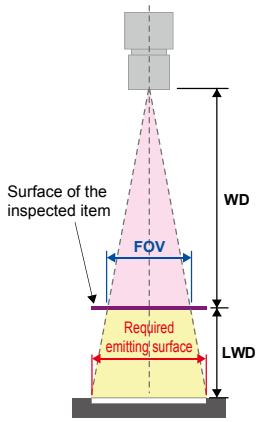
2 Pixel count for line cameras

Pixel count	Pixel size	Ratio of receiving surface area
2K (2,048)	14×14 µm	16
4K (4,096)	10×10 µm	8
8K (8,192)	7×7 µm	4
12K (12,228)	5×5 µm	2
16K (16,384)	3.5×3.5 µm	1

Note: Brightness varies based on the wavelength of the light source and the receiving sensitivity of the image sensor. Brightness does not necessarily correspond to the receiving surface area ratio.

3 How to find the required emitting surface when selecting a line sensor Light

Setup examples



Information required when selecting the length of your Light Unit

(1) WD (Working distance):
Distance from the camera to the surface of the inspected item

(2) LWD (Light working distance):
Distance from the Light Unit to the surface of the inspected item

(3) FOV (Field of vision)

Calculate the require emitting surface using the items above

Solve Use the trigonometric ratio and calculate using the following procedure.

WD : FOV = (WD + LWD) : Required emitting surface

$$\text{Required emitting surface} = \frac{\text{FOV} \times (\text{WD} + \text{LWD})}{\text{WD}}$$

Note: The above is only valid for applications using direct light transmission or direct light reflection. The emitting surface must be uniform. Select a Light Unit longer than the emitting surface you calculated.

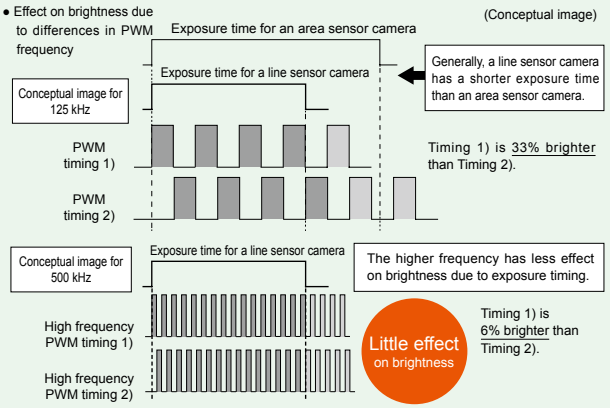
When selecting a Digital Control Unit, be sure to consider high-frequency types as well. A Control Unit with a PWM frequency of 500 kHz can be made for custom orders. Please contact your CCS sales representative for details.

Introduction of the high-frequency Digital Control Unit (custom order)

PD3-10024-8 series

- PWM intensity control (500 kHz)
- 95 W capacity (EL connector: 1 channel)
- AC input
- 3 types of external control
  - Parallel communication
  - Ethernet communication
  - EIA-485 communication

See the PD3 series (standard) product page ►P.189



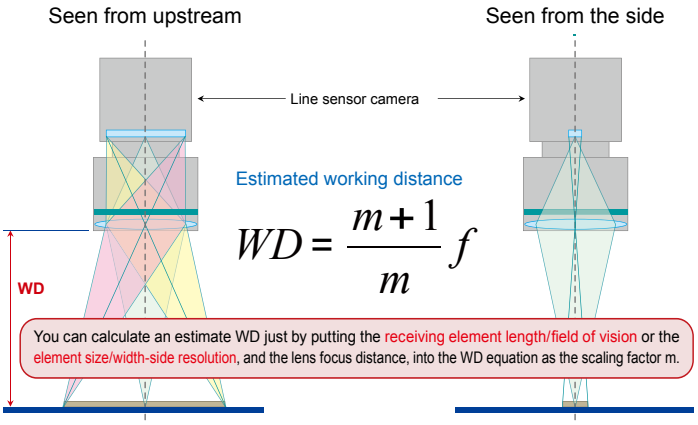
For details about PWM, refer to P.246 in the technical guide.

Setting optical and lighting conditions

1 How to find the working distance (WD) * Reference value

Optical system for the line sensor camera (Wide-side resolution)

It is necessary to calculate the working distance in advance.



Method for testing line sensor image input

When using a line sensor camera, calculate the working distance (WD), carrying speed, and scan rate before starting the test.

■ Example calculation with the following camera specs and conditoins

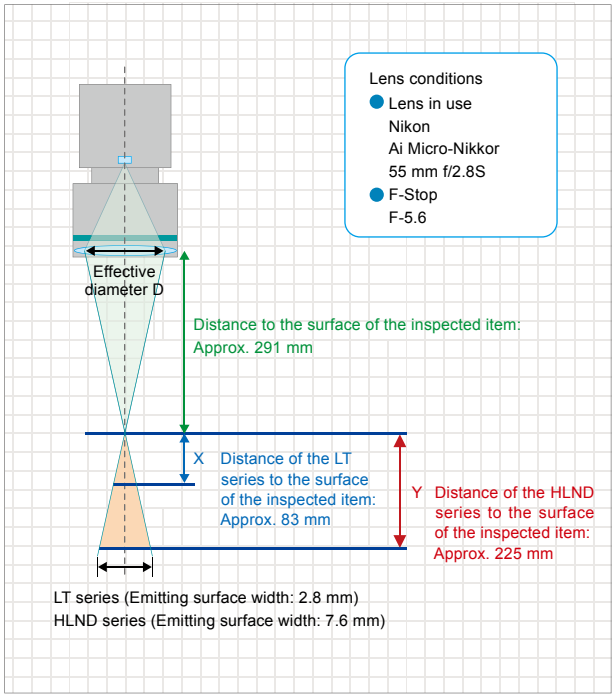
Pixel size: 7 µm × 7 µm (Pixel count: 8,192)

The scan rate and working distance when performing an image input test with the following conditions for a lens where focus distance f = 55 mm is calculated as follows:

Cond. 1 Carrying speed: 200 mm/sec
Cond. 2 Resolution: 30 µm (Moving direction) × 30 µm (Lateral direction)

Scan rate = 0.03 mm ÷ 200 mm/sec = 0.00015 sec
= 150 µsec
Working distance = {(7/30 + 1) / (7/30)} × 55 mm
= Aprox. 291 mm

2 Relationship between the lens' effective diameter and the Light Unit's installation distance * Reference value



■ What is the effective diameter for the lens in the conditions on the left?

D = Lens focus distance ÷ F-stop = 55 ÷ 5.6 = 9.8

■ What is the longest distance where the most efficient brightness can be achieved for the emitting width (short side) of each Light Unit?

⇒Find it using similar relationships

1) If using the LT series

9. 8: 291 = 2. 8 : X
X = (291 x 2. 8) ÷ 9. 8 = Approx. 83 mm

2) If using the HLND series

9. 8: 291 = 7. 6 : Y
Y = (291 x 7. 6) ÷ 9. 8 = Approx. 225 mm

For both the above Light Units, if the Light Unit is farther than the distance above, it will be darker, but if the Light Unit is closer than the distance above, there will be virtually no change in the brightness. (However, this assumes that the inspected item is limited to something transparent where the illuminated light can be observed directly. This cannot be applied to an inspected item with a possibility for diffusion.)

Also, if the lens in use or the F-stop changes, various conditions such as the effective diameter and WD change. Therefore, please consider this only as a reference value under certain conditions. Furthermore, the camera's pixel size is a large factor regarding brightness.

3 Comparison of the images for the area sensor camera and the line sensor camera

■ **Imaging sample (Metal bar)**

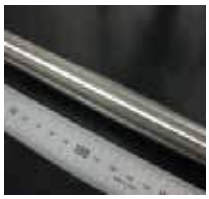
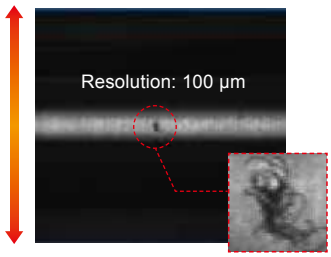


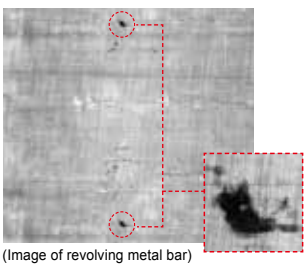
Image of scratches on a metal bar

- Sample size: Length 150 mm, Ø20 mm
- Resolution: 100 µm
- Pixels of the camera in use
  - Line camera: 8,192 pixels
  - Area camera: 300,000 pixels

■ **Imaging with the area sensor camera**



■ **Imaging with the line sensor camera**



(Image of revolving metal bar)

Maintenance and Inspection

LED Lights (Be careful not to touch the casing during or after use as the temperature is high and can cause burns.)

Use a dry soft cloth to wipe away any dust, grime or other foreign material from the emitting surface. If there is any oil or similar substance adhering, use a soft cloth that has been dampened with a neutral cleaner to wipe it off. Do not use thinner, benzene or any similar liquids. Doing so could result in discoloration and deformation.

Control Units for LED Lights (Always be sure that the Control Unit is turned off before cleaning.)

Use a dry soft cloth to wipe away any dust, grime or other foreign material from the electrodes. If there is any oil or similar substance adhering, use a soft cloth that has been dampened with a neutral cleaner to wipe it off. Do not use thinner, benzene or any similar liquids. Doing so could result in discoloration and deformation.

Options

Periodically inspect option parts such as polarizing and diffusion plates as all of these are consumables. Replace any parts that show discoloration or deformation during inspection. CCS recommends maintaining extra option parts on-hand in order to be prepared for replacement.

Always be sure to consult the “Instruction Guide” when performing maintenance and inspection.

Operating and Storage Environments

These products are LED Lights that are mainly used for image processing and industrial inspection. Do not use these for other purposes. Always be sure to obey the following precautions.

Absolutely never use under the following conditions.

- Use under conditions or in an environment not described in the “Instruction Guide”
- Use for nuclear power control, railroads, aircraft, automobiles, combustion devices, medical equipment, home entertainment equipment, safety equipment. or any similar devices or equipment
- Use where it is thought that human life or property will be greatly affected, especially application where safety is required

Install in a location that satisfies the following conditions. An improper installation location can result in product malfunction.

- Low vibration and stable
- Water, oil, liquid, chemicals, steam or similar substances cannot contact or otherwise affect the product*
- Low level of dust and good ventilation
- No corrosive or flammable gases
- No sudden changes in temperature
- Far away from water lines, water heaters, humidifiers, air conditioners, heaters and similar equipment

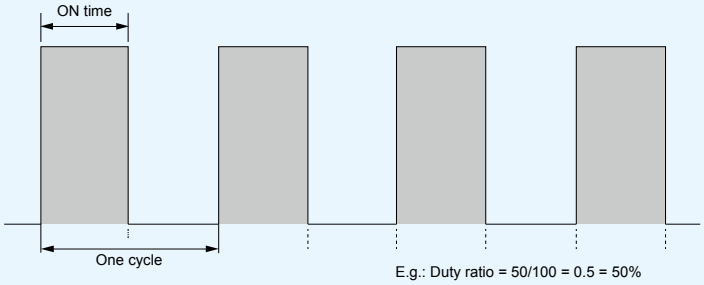
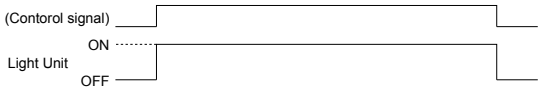
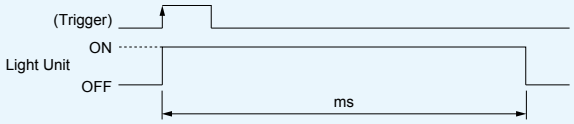
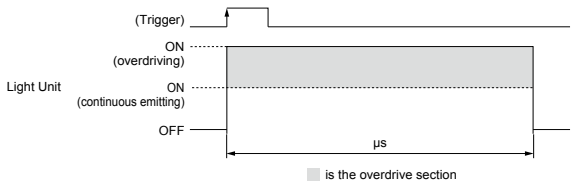
* Install IP-compatible products in a range that permits performance.

Use in the following environments.
An improper operating environment can result in product malfunction.

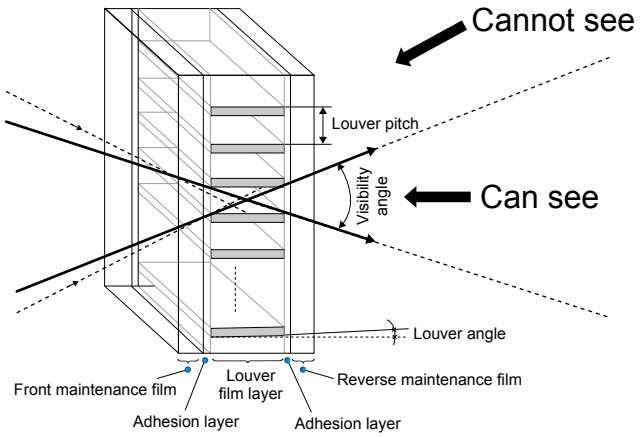
- Operating temperature: 0 to 40°C, Humidity: 20% to 85%RH (with no condensation)
- Storage temperature: -20 to 60°C, Humidity: 20% to 85%RH (with no condensation)

Operating and storage environments of products that are different from these are described on the corresponding product page.

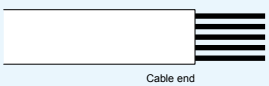
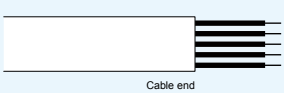
Explanation of Terminology

No.	Classification	Term	Explanation of Terminology
1	Control Unit	Digital control (Duty control)	This is a method of intensity control of the PD series. Intensity control is performed by varying the duty of the pulse on (proportion of time it is on (lit up) during a single pulse). With 8-bit control, you can perform 256-step linear intensity control. If using a high-speed shutter, you must be careful of frequency interference.
2	Control Unit	PWM control	PWM: An abbreviation of pulse width modulation, one pulse modulation method in which the period and amplitude are maintained at a constant, and only the pulse width is changed. Duty ratio: Expresses the amount of time a pulse wave is ON during a cycle as a ratio. Relational expression: Duty ratio = ON time/Period Products with this mark at the top of their product introduction page can be customized for a PWM frequency of 500 kHz.  E.g.: Duty ratio = 50/100 = 0.5 = 50%
3	Control Unit	External ON/OFF control (ON/OFF emitting)	 A method for emitting light for the time during which the ON signal of an ON/OFF signal is received.
4	Control Unit	Strobe emitting	"Strobe" refers to light being emitted for a specified amount of time in synchronization with a trigger signal. This additionally includes emitting light for a fixed amount of time after a delay has been applied for a fixed amount of time. 
5	Control Unit	Overdrive	“Overdrive” is a use method for emitting brighter light by applying a large current to an LED Light for a fixed amount of time. This current exceeds the current during continuous ON/OFF emitting. Products with this mark at the top of their product introduction page support overdrive. 

Explanation of Terminology

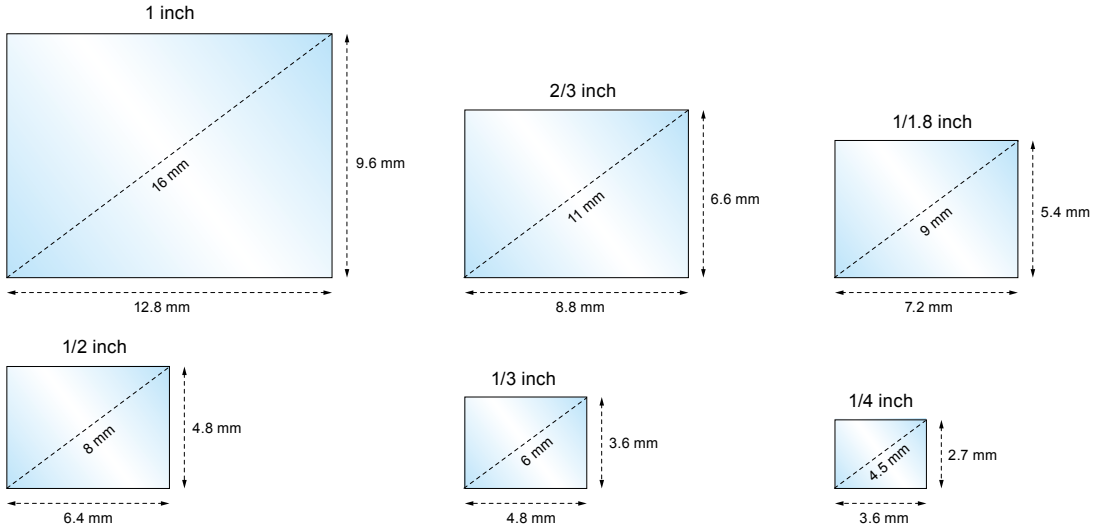
No.	Classification	Term	Explanation of Terminology
6	Options	Sharp cut filter	This filter sharply cuts off light of wavelengths that are less (or more) than the specified wavelength. At CCS, we mainly use these attached to the lens.
7	Options	Light control film	This plastic film is arranged as a minute louver with extremely small gaps. It functions to reduce the diffusion of light in a specific direction and improves parallelism.  **Basic structure of light controller film (cross-section)**
8	Other	LWD	The distance from the tip of the light source to the surface of the workpiece (sample). Abbreviation for light-work-distance. * Although this term is used in our website, catalogs and other materials with the above meaning, care must be paid if it is used for other publications as it is not a term that is officially defined by standards or a similar document.

Supplement

Category	Description		
About the cable condition	Cut off on one end		The cable end has the wiring cut off. This does not have loose wires.
	Loose wires		This has loose wires. (Flying lead)
	Conductor exposure		This has loose wires with exposed conductors.

Camera Image Sensor Size

These are examples of image sensor sizes for use with a camera of an image processing inspection system.



Field of Vision Chart

* These values are for reference.

(Units: mm)

Refer to the field of vision chart for telecentric lenses (SE-65/SE-110):
► P.181

Refer to the field of vision chart for macro lenses (SE-16/SE-18):
► P.183

Optical magnification	Camera Image Sensor Size											
	2/3 inch			1/1.8 inch			1/2 inch			1/3 inch		
	Length	Width	Diagonal	Length	Width	Diagonal	Length	Width	Diagonal	Length	Width	Diagonal
0.1x	66.00	88.00	110.00	53.20	71.80	89.30	48.00	64.00	80.00	36.00	48.00	60.00
0.2x	33.00	44.00	55.00	26.60	35.90	44.65	24.00	32.00	40.00	18.00	24.00	30.00
0.3x	22.00	29.33	36.67	17.73	23.93	29.77	16.00	21.33	26.67	12.00	16.00	20.00
0.4x	16.50	22.00	27.50	13.30	17.95	22.33	12.00	16.00	20.00	9.00	12.00	15.00
0.5x	13.20	17.60	22.00	10.64	14.36	17.86	9.60	12.80	16.00	7.20	9.60	12.00
0.6x	11.00	14.67	18.33	8.87	11.97	14.88	8.00	10.67	13.33	6.00	8.00	10.00
0.7x	9.43	12.57	15.71	7.60	10.26	12.76	6.86	9.14	11.43	5.14	6.86	8.57
0.8x	8.25	11.00	13.75	6.65	8.98	11.16	6.00	8.00	10.00	4.50	6.00	7.50
0.9x	7.33	9.78	12.22	5.91	7.98	9.92	5.33	7.11	8.89	4.00	5.33	6.67
1x	6.60	8.80	11.00	5.32	7.18	8.93	4.80	6.40	8.00	3.60	4.80	6.00
1.5x	4.40	5.87	7.33	3.55	4.79	5.95	3.20	4.27	5.33	2.40	3.20	4.00
2x	3.30	4.40	5.50	2.66	3.59	4.47	2.40	3.20	4.00	1.80	2.40	3.00
3x	2.20	2.93	3.67	1.77	2.39	2.98	1.60	2.13	2.67	1.20	1.60	2.00
4x	1.65	2.20	2.75	1.33	1.80	2.23	1.20	1.60	2.00	0.90	1.20	1.50
5x	1.32	1.76	2.20	1.06	1.44	1.79	0.96	1.28	1.60	0.72	0.96	1.20
6x	1.10	1.47	1.83	0.89	1.20	1.49	0.80	1.07	1.33	0.60	0.80	1.00
7x	0.94	1.26	1.57	0.76	1.03	1.28	0.69	0.91	1.14	0.51	0.69	0.86
8x	0.83	1.10	1.38	0.67	0.90	1.12	0.60	0.80	1.00	0.45	0.60	0.75
9x	0.73	0.98	1.22	0.59	0.80	0.99	0.53	0.71	0.89	0.40	0.53	0.67
10x	0.66	0.88	1.10	0.53	0.72	0.89	0.48	0.64	0.80	0.36	0.48	0.60
12x	0.55	0.73	0.92	0.44	0.60	0.74	0.40	0.53	0.67	0.30	0.40	0.50

Regulations

Photobiological safety evaluation of LED Lights for image processing

In order to ensure the safe usage of LED Lights, CCS has categorized the risks related to each Light Unit.
When you are considering the purchase of LED Lights or are checking risk information of a product you have purchased, please refer to the specifications section of the product information page of our website.

List of products conforming to EU standard CE

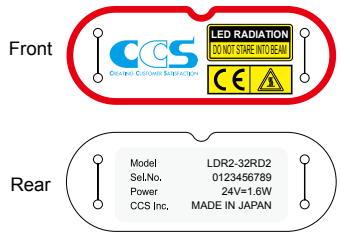
The following CCS products comply with the corresponding standard.

	Series name	Safety standard	EMC standard	
			EMS	EMI
Light Units	LDR2, LDR2-LA, LDR-LA-1, SQR, HLDR-IP, HPR2, LFR, LKR, FPR, FPQ2, LDL2, HLDL2, TH, LFL, HPD2, LDM2, LAV, PDM, LFX2, LFV3, MSU, MFU, UV2, UV, IR2, HLV2-14, HLV2-22, HLV2-22-3W, HLV2-22-NR-3W, HLV2-3M-RGB-3W, LV, LNSP, LN, LN-HK, LNSD, LND2, HLND, LT, LNV, LNIS	EN62471	—	—
	LDLB, LNSP-FN, LNSP-UV-FN, LNIS-FN, LNDG	EN62471	EN61000-6-2	EN61000-6-4
Integrated Control Units for Light Units	PFBR-150SW-MN	EN61010-1	EN61000-6-2	EN61000-6-4
	PFB2-20SW-F-AJT, PJT, SJT	—	EN61000-6-2	EN61000-6-4
	PFB2-20SW-F-JT	—	EN61326-1 ClassA	
Control Units	PD2-1012, PD2-1024	—		
	PD2-3012, PD2-3024, PD2-5012, PD2-5024	EN61010-1	EN61326-1 ClassA	
	POD-5024-2-PEI	EN61010-1	EN61000-6-2	EN61000-6-4
	PTU2	EN61010-1	EN61326-1 ClassA	
	STU-3000	—	EN61000-6-2	EN61000-6-4
	PSB-512, PSB-524, PSB-1012, PSB-1024, PSB-3012, PSB-3024	—		
	PSB-1012V-WW, PSB-1024V-WW	EN61010-1	EN61326-1 ClassA	
	PJ (AC input types)	EN61010-1	EN61000-6-2	EN61000-6-4
	PJ (DC input types)	—	EN61000-6-2	EN61000-6-4
	CC-PJ-0707, PB-2430-1	—	EN61000-6-2	EN61000-6-4
	BB, CC-ST-1024	—	EN61326-1 Class A	
	PD3 (AC input types)	EN61010-1	EN61326-1 Class A	
	PD3 (DC input types)	—	EN61326-1 Class A	
	PSCC(A), PSB3-3-30024	EN61010-1	EN61326-1 Class A	

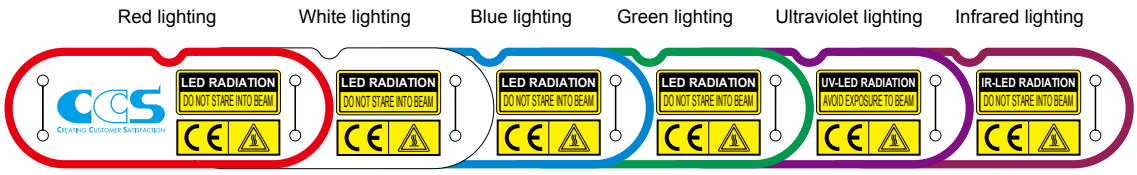
Note: Our Light Units that were designed and developed in September 2011 or later comply with the EU standard and bear the CE marking.

Examples of label tags

LED Lights of CCS have label tags as shown below attached to their cables or case bodies. These labels are color-coded according to the emitted light of the corresponding Light Unit. The model, serial number, CE marking and related information are shown on the rear of the label.



* These label tags are attached to the case bodies for the LED Lights which do not have cables.
* Not applicable to custom ordered lighting.



Environmental Regulations

EU RoHS Directive

The products described in this catalog are compliant with the RoHS Directive.
Refer to our website or the "Instruction Guide" included with the product for details regarding the RoHS Directive.

Chinese RoHS Directive

The products described in this catalog are compliant with the RoHS Directive.
Refer to our website or the "Instruction Guide" included with the product for details regarding the RoHS Directive.

REACH Regulations

To perform appropriate risk management for the chemical materials included in the products listed in this catalog, we have established efforts related to reducing the burden on the environment from procured parts, and we strive to select more environmentally-friendly procured parts. Also, as a response to REACH regulations, we have newly constructed an assessment/information transmission system for the chemical materials included in our products, and we are performing autonomous management.
Inquire with your CCS sales representative regarding products and each product's use of materials designated as SVHC (substances of very high concern) under REACH regulations.

Warranty Information

Warranty Period: Two years* from the date the product is shipped from CCS. (However, radiant quantity warranty is one year)

* Excluding optional products.

EXCEPT FOR THE EXPRESS WARRANTIES STATED IN THIS DOCUMENT, CCS MAKES NO ADDITIONAL WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO ANY MATTER WHATSOEVER. IN PARTICULAR, ANY AND ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. EXCEPT AS EXPRESSLY SET FORTH HEREIN, CCS MAKES NO WARRANTIES WITH RESPECT TO THE PRODUCTS.

WARRANTY PERIOD: TWO YEARS (ONE YEAR FOR RADIANT QUANTITY), STARTING FROM CCS Inc. SHIPPING DATE.

CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF IT SHOULD FAIL TO FUNCTION OR IF THE RADIANT QUANTITY OF THE PRODUCT SHOULD DROP TO 50% OR LESS OF ITS INITIAL RADIANT QUANTITY WITHIN THE SPECIFIED WARRANTY PERIOD.
IF EITHER OF THESE CONDITIONS OCCURS, PLEASE TAKE THE PRODUCT TO YOUR CCS SALES REPRESENTATIVE.

WARRANTY TERMS

1. CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF IT SHOULD FAIL TO FUNCTION UNDER USE ON OUR SPECIFIED CONDITION IN ACCORDANCE WITH THE INSTRUCTION GUIDE AND OTHER WRITTEN CAUTIONS DURING THE INDICATED WARRANTY PERIOD OF TWO YEARS.

2. CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF ITS RADIANT QUANTITY SHOULD DROP TO 50% OR LESS OF ITS INITIAL RADIANT QUANTITY UNDER USE ON OUR SPECIFIED CONDITION IN ACCORDANCE WITH THE INSTRUCTION GUIDE AND OTHER WRITTEN CAUTIONS DURING THE INDICATED WARRANTY PERIOD OF ONE YEAR.

3. CCS Inc. WILL CHARGE A REPAIR FEE UNDER THE FOLLOWING CONDITIONS:
1) IF THE PRODUCT HAS BEEN SUBJECTED TO MISUSE, UNAUTHORIZED REPAIRS, OR MODIFICATION FROM ITS ORIGINAL DESIGN.
2) IF THE PRODUCT HAS BEEN DAMAGED FROM IMPACTS DUE TO INAPPROPRIATE HANDLING.
3) IF DAMAGE TO THE PRODUCT RESULTS FROM EXTERNAL CAUSES INCLUDING ACCIDENTS, FIRE, POLLUTION, RIOTS, COMMUNICATION FAILURES, EARTHQUAKES, THUNDERSTORMS, WIND AND FLOOD DAMAGE, OR ANY OTHER ACT OF PROVIDENCE, OR FROM ANY EXTRAORDINARY CONDITIONS SUCH AS ELECTRICAL SURGES, WATER LEAKAGE, CONDENSATION, OR THE USE OF CHEMICALS.
4) IF THE DAMAGE RESULTS FROM CONNECTION TO ANY POWER SUPPLY OR TO ANY EQUIPMENT WHICH CCS Inc. DOES NOT MANUFACTURE OR DOES NOT SPECIFY FOR USE.

4. CCS ASSUMES NO LIABILITY FOR ANY PURCHASER'S SECONDARY DAMAGE (DAMAGE OF EQUIPMENT, LOSS OF OPPORTUNITIES, LOSS OF PROFITS, ETC.) OR ANY OTHER DAMAGE RESULTING FROM A FAILURE OF OUR PRODUCT.

THIS WARRANTY INFORMATION PROVIDES THE SCOPE OF CCS'S PRODUCT WARRANTY WITHIN THE SPECIFIED PERIOD, AND DOES NOT INDICATE OR IMPLY ANY FURTHER GUARANTEE BEYOND THE WARRANTY TERMS.
CONTACT CCS FOR INQUIRIES OR INFORMATION ON REPAIRS TO THE PRODUCT AFTER THE EXPIRATION OF THE WARRANTY.

NOTE: THE RADIANT QUANTITY REFERS TO THE WATTAGE OF PHYSICAL ENERGY RADIATED FROM AN LED. IT REFERS TO THE RADIATION LUMINOSITY OF THE LED MEASURED UNDER CONDITIONS SPECIFIED BY CCS OR THE RADIATION ILLUMINATION OF THE LED UNDER SPECIFIED IRRADIATION CONDITIONS. CCS SPECIFIES THE RADIANT QUANTITY FOR EACH LED LIGHT BECAUSE THE MEASUREMENT AND IRRADIATION CONDITIONS VARY FROM THE FORM, THE APPLICATION AND THE IRRADIATION WAVELENGTH.

Repairs and Returns

Inquire at your CCS sales representative about repairs and returns.

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.
- The workpiece imaging examples included in this catalog are intended to serve only as references to help you select a suitable Light Unit. Please verify the functionality and conditions required for your particular application before you make a final selection. The sample workpieces used in this catalog have been processed specifically for sample imaging. They are not intended to represent product quality and performance.

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* □ = Letter ■ = Number

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* □ = Letter ■ = Number

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Discontinued Products Information

Discontinued products				Successor		
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		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
H	HLND series	T type	Obsolete	HLND series	TT type	P.147
		R type	Obsolete		RR type	
	HLV series		Obsolete	HLV2 series		P.109
	HPD series		Obsolete	HPD2 series		P.71
	HPR series		Obsolete	HPR2 series		P.29
	HSL series		Obsolete	HSL-PCL series		P.180
I	IR series		Obsolete	IR2 series		P.103
L	LDL series		Obsolete	LDL2 series		P.43
	LDL series (Flat type)		Obsolete	TH series		P.63
	LDL-TP series		Obsolete			P.63
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		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LDQ series		Obsolete	LDL2 series		P.43
	LDR-LA-1 series	RD type(Red)	Obsolete	LDR-LA1 series	RD2 type(Red)	P.19
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		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LDR2 series	RD type(Red)	Obsolete	LDR2 series	RD2 type(Red)	P.11
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LDR2-LA series	RD type(Red)	Obsolete	LDR2-LA series	RD2 type(Red)	P.15
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LFL series	RD type(Red)	Obsolete	LFL series	RD2 type(Red)	P.67
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LFR series	RD type(Red)	Obsolete	LFR series	RD2 type(Red)	P.33
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	

Discontinued products			Note	Successor		
Series				Series		
L	LFV series		Obsolete	LFV3 series		P.83
	LFV-34-M series		Obsolete	—		—
	LFV2 series		Obsolete	LFV3 series		P.83
	LFX series		Obsolete	LFX2 series		P.79
	LKR series	RD type(Red)	Obsolete	LKR series	RD2 type(Red)	P.35
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LN series	RD type(Red)	Obsolete	LN series	RD2 type(Red)	P.137
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LN-HK series	SW type(White)	Obsolete	LN-HK series	SW2 type(White)	P.138
	LND series		Obsolete	LND2 series		P.143
	LNV series	RD type(Red)	Obsolete	LNV series	RD2 type(Red)	P.157
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	LV series	RD type(Red)	Obsolete	LV series	RD2 type(Red)	P.113
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
M	MSU series	RD type(Red)	Obsolete	MSU series	RD2 type(Red)	P.89
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
P	PFB series		Obsolete	PFB2 series		P.121
	PHL-0508-CD24		Obsolete	CC-PJ-0707		P.180
	PSB2 series		Obsolete	PSB3-30024		P.221
S	SQR series	RD type(Red)	Obsolete	SQR series	RD2 type(Red)	P.23
		SW type(White)			SW2 type(White)	
		BL type(Blue)			BL2 type(Blue)	
		GR type(Green)			GR2 type(Green)	
	SQR-TP-28-OR		Obsolete	SQR-TP-28-RD		P.24
	SQR-TP-34-OR		Obsolete	SQR-TP-34-RD		P.24

Company Information

Motto

The Spirit of Love and Appreciation for Customers

Philosophy

Advancing Society with the Science of Light

Company Overview

Company name	:	CCS Inc.
Established	:	Oct. 6, 1993
Capital	:	462.15 million yen (as of July 2015)
Listed exchange	:	Tokyo Stock Exchange JASDAQ
Business operations	:	Development, manufacturing and sales of LED Lights and control equipment for image processing. Development, manufacturing and sales of other LED Lights for applications such as microscope light sources, plant cultivation, medical use, and art and other museums.

Provide Services Appropriate to All of Our Customers' Needs

Customers in the field of LED Light for image processing choose CCS because of our lighting solutions and product development capabilities. Customers who are thinking, "I want to capture this image" or "I need to solve this problem," can select the optimal Light Unit from our product lineup that is replete with over 1,500 models of Light Units. Additionally, we can create prototypes, and perform design and development of custom ordered products to match your exact needs.
Since we established our company in 1993, we have become a leading company in the industry by accumulating over 50,000 captured workpiece images, and providing design, development and manufacturing of over 10,000 models of custom ordered Light Units. The optical, heat, control, evaluation and other similar technology and know-how that we have accumulated from these results allow us to provide "Optimal Images" to our customers.

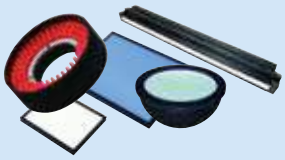
Based on the know-how and skills we have accumulated since our founding, CCS combines various elements, such as light wavelength, illuminating distance, and illuminating angle, to provide a "lighting solution" environment that is perfect for our customers.

We Believe Strongly in Our Promise of Product Quality

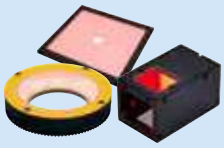
Under the key words of "Quality First", we create products that thoroughly meet our exacting standards of product quality. In order to maintain and improve that product quality, we have introduced ISO 9001 and are developing products based on a design review system. We conduct internal examination throughout all process of product planning, design and production, and also perform our own rigorous quality control from LED selection up until manufacturing, inspection and shipping. Additionally, we secure traceability of the components, assembly, measurement results, shipping and other aspects of each individual product to create a system that can provide support to our customers even after the product is delivered.
At the time CCS was established, we focused on the great potential of LEDs that were only used for display devices and have continuously developed products since then in order to provide reliable product quality that only CCS, with our vast knowledge of LED Lights, can offer.

Achievements — Leading company in the field of LED Lights for image processing

- Largest standard products lineup in the industry with more than 1,500 models of Light Units
- Design, development and manufacturing of over 10,000 models of custom ordered Light Units
- More than 50,000 captured workpiece images
- More than 18,000 free loan products
- 8 locations in Japan, 10 locations outside of Japan, for offering service & support



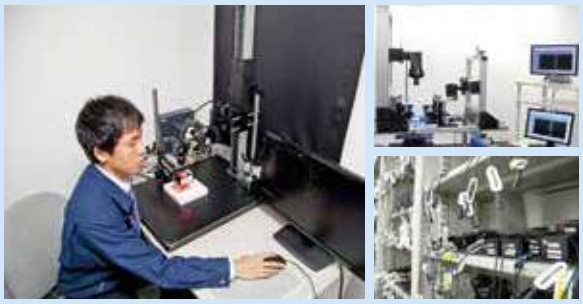
Standard products



Custom ordered Light Units

Consulting — Pursuing precision lighting

We provide consulting regarding our top world class lighting technology. Each of our bases of operation have a testing room for performing imaging testing and renting out Light Units. We suggest Light Units that are optimal for all of your needs.



Development — Design without compromises

CCS carries out design and development of Light Units by applying optical, heat, control, evaluation and other technology such as optical, heat and other simulation. We give form to lighting technology by using our unique development capabilities.

Production — High-quality domestic manufacturing

All of our products are manufactured in Japan. We produce small quantities of a large variety of products in order to develop products that match a wide range of needs. Each of our workers have their own individual work station where they take responsibility for all aspects from mounting and assembly to inspection using our own unique inspection equipment.

Application — Discovering new lighting

We are also applying the technology and know-how accumulated in the field of LED Light for image processing in order to advance into new fields such as the development of UV-LED Lights used in manufacturing processes such as panel affixing, and the development of an original "natural light LED" with characteristics near to those of sunlight.

Business Locations

CCS America, Inc. (USA)

5 Burlington Woods, Suite 204,
Burlington, MA 01803, U.S.A.
TEL : +1-781-272-6900
FAX : +1-781-272-6902
URL : http://www.ccsamerica.com/
Email : info@ccsamerica.com

El Paso Texas Testing Room (USA)

5959 Gateway Blvd. West, Suite 554,
El Paso, TX 79925, U.S.A.

San Jose Testing Room (USA)

6120 Hellyer Ave., Suite175,
San Jose, CA 95138, U.S.A.

CCS Europe N.V. (Belgium)

Bergensesteenweg 423, Bus 13,
1600 Sint-Pieters-Leeuw, Belgium
TEL : +32-(0)2-333-0080
FAX : +32-(0)2-333-0081
Email : info@ccseu.com

CCS Asia PTE. LTD. (Singapore)

63 Hillview Avenue #07-10, Lam Soon
Industrial Bldg Singapore 669569
TEL : +65-6769-1669
FAX : +65-6769-3422
Email : sales@ccs-asia.com.sg

CCS Asia Bangkok Representative Office

1 Ladprao Road Jompol Sub-District, Jatujak District
Level 7 Unit 700 Promphan Building 2 Bangkok 10900 Thailand
TEL : +66-2938-4297-8
FAX : +66-2938-4498

Shanghai Office (China)

Name: CCS Inc. Shanghai Office (China)
Room 308B-309, CIMIC Tower No.1090
Century Avenue, Pu Dong New Area,
Shanghai, 200120, P.R. China
TEL : +86-21-5835-8728
FAX : +86-21-5835-8928
Email : ccschina@ccs-inc.co.jp

Shenzhen Office (China)

Name: CCS Inc. Shenzhen Office
17B, China Economic Trade Building, 7Rd Zizhu,
Zhuzilin, Futian District,
Shenzhen, 518040, P.R. China
TEL : +86-755-8279-0477
FAX : +86-755-8279-0478
Email : ccschina@ccs-inc.co.jp

Taiwan Office

Name: CCS Inc. Taiwan Office
5F-7.No. 229, Fùxing 2nd Rd, Zhubei City,
Hsinchu County, 30271, Taiwan
TEL : +886-3-550-3530
FAX : +886-3-550-3530

Rsee Lighting Technology Co., Ltd (China)

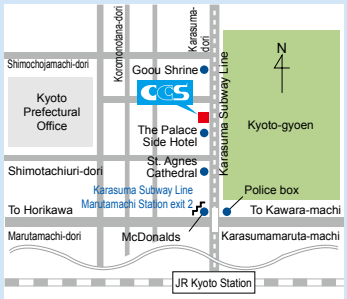
Name: Rsee Lighting Technology Co., Ltd
No.333 Zhushan Zhenxing Road, Dongcheng District,
Dongguan, Guangdong Prov., China
A Building, Dongcheng Creative Industry Park

Business Locations

Kyoto Head Office / Seibu Sales Office / Testing Room

374 Okakuencho, Shimodachiuri-agaru, Karasuma-dori, Kamigyo-ku, Kyoto 602-8011, Japan
TEL : +81-75-415-8277 (Sales) FAX : +81-75-415-8278 (Sales)
< Access Information>
From JR Kyoto Station, take the Karasuma Subway Line to Marutamachi Station. 5 minutes walk to left (North) from exit 2.

Fully-equipped line sensor testing room



Tokyo Sales Office / Testing Room

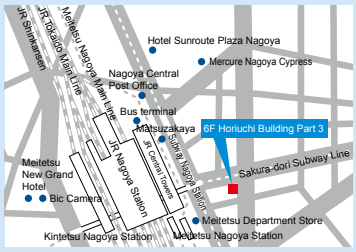
11F Asahi Mutual Life Insurance Co. Ebisu Building, 1-3-1 Ebisu, Shibuya-ku, Tokyo 150-0013, Japan
TEL : +81-3-5791-3701 FAX : +81-3-5791-3704
< Access Information>
Get off the train at the Ebisu Station of the JR Yamanote Line and exit through the East exit.
3 minutes walk from the exit.
Get off the Hibiya Subway Line at Ebisu Station and exit through the Exit 1.
5 minutes walk from the exit.

Fully-equipped line sensor testing room

Nagoya Sales Office / Testing Room

6F Horiuchi Building Part 3, 4-6-23 Meieki, Nakamura-ku, Nagoya, Aichi 450-0002, Japan
TEL : +81-52-541-6550 FAX : +81-52-541-6050
< Access Information>
3 minutes walk from JR Nagoya Station
(Right outside exit 5 of the underground Unimall)

Fully-equipped line sensor testing room



Kanazawa (Ishikawa) Testing Room

#301 Royal Park Plaza, 1-13-38 Kitayasue, Kanazawa, Ishikawa 920-0022, Japan
TEL: +81-52-541-6550 FAX: +81-52-541-6050
(Contact: Nagoya Sales Office)
<Access Information>
5 minutes walk from Nanatsuya Station on the Asanogawa Line of the Hokuriku Railroad
/9 minutes walk from Kanazawa Station

Newly built Sep. 1, 2014

Moriyama (Shiga) Testing Room

3F Umeda Sky Building, 10-1 Umeda-cho, Moriyama, Shiga 524-0037, Japan
(Above the FamilyMart)
TEL: +81-75-415-8277 FAX: +81-75-415-8278
(Contact: Seibu Sales Office)
<Access Information>
500 m from JR Moriyama Station
(7 minutes walk)

Newly built Sep. 1, 2014

Honatsugi (Kanagawa) Testing Room

Room #602 Pureru Honatsugi 2-Bankan, 2-24 Tamura-cho, Atsugi, Kanagawa 243-0016, Japan
TEL: +81-3-5791-3701 FAX: +81-3-5791-3704
(Contact: Tokyo Sales Office)
< Access Information>
700 m from north exit of Honatsugi Station on the Odakyu Electric Railway Odawara Line (8 minutes walk)

Newly built Nov. 15, 2015

Production Center (Kyoto)

Kyoto King bldg., 2-1 Higashi Shiokouji Takakura-cho, Simogyo-ku, Kyoto 600-8214, Japan (1F: front counter)
TEL : +81-75-691-5600 FAX : +81-75-691-5601
< Access Information>
3 minutes walk from JR Tokaido Main Line Kyoto Station by Hachijo East exit
/3 minutes walk from Kintetsu Kyoto Station by Hachijo exit
/10 minutes from Meishin Expressway Kyoto South IC

Yodoyabashi (Osaka) Testing Room

Room #1101 Exe Tower Doshomachi, 3-3-8 Doshomachi, Chuo-ku, Osaka 541-0045, Japan
TEL: +81-75-415-8277 FAX: +81-75-415-8278
(Contact: Seibu Sales Office)
<Access Information>
300 m from the #13 exit at the Yodoyabashi Station from the subway Midosuji Line
(3 minutes walk)

Newly built Nov. 15, 2015

Sendai (Miyagi) Testing Room

13F Mitsui-seimei sendai-honcho Building (Azur Sendai), 1-1-1 Honcho, Aoba-ku, Sendai, Miyagi 980-0014, Japan
TEL : +81-22-224-9101 FAX : +81-22-224-9102
< Access Information>
3 minutes walk from the West exit of JR Sendai Station
/3 minutes walk from subway Sendai Station
/3 minutes walk from subway Hirose-dori Station

Lighting Technology Institute (Kyoto)

33 Konoemachi, Demizu-Agaru, Muromachi-dori, Kamigyo-ku, Kyoto 602-8019, Japan
TEL : +81-75-415-2101 FAX : +81-75-432-0101
< Access Information>
From JR Kyoto Station, take the Karasuma Subway Line to Marutamachi Station.
9 minutes walk to left (North) from exit 2.

Service and Support

I want to verify some various Light Units but **our company doesn't have a proper environment.**

Resolve by free loan products

I need to **change the wavelength and size of the Light Unit** for defect testing of electronic parts...

Resolve by custom ordering

These worries can be resolved.

I'm not sure that the Light Units mounted on my existing testing equipment are okay... **I want to make them more stable.**

Resolve by free consulting

Can the shiny lettering on the surface of a workpiece **be clearly read?**

Resolve by free testing

We can do it because CCS is number one in the industry.

Light Unit design
is the key to success in Image Processing!

We provide a variety of services and support so that you can select the optimal lighting for your needs. Please feel free to inquire.

Testing Room Information

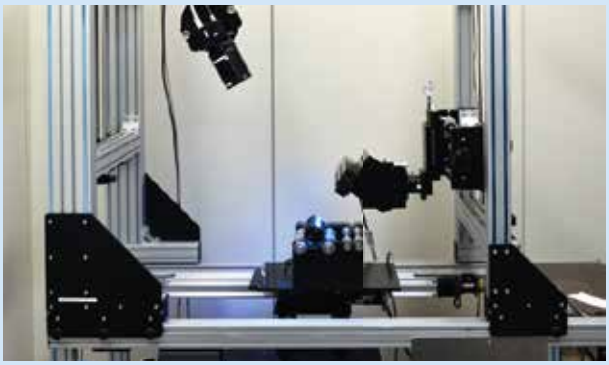
We can satisfy all of your requirements with our rich product assortment.

Testing Rooms

CCS has fully-equipped testing rooms where you can perform workpiece tests directly for yourself using our LED Lights. Please feel free to make an appointment. We are looking forward to helping you.

Line-Sensor Testing Rooms

We have testing rooms especially for Line Sensor Light.



We perform tests that nearly recreate your imaging environment. We suggest the lighting solution for getting optimal images using our LED Lights, Control Units, and options.

- For customers without line-sensor testing equipment who are concerned about workpiece testing
- Customers who want to bring in line cameras

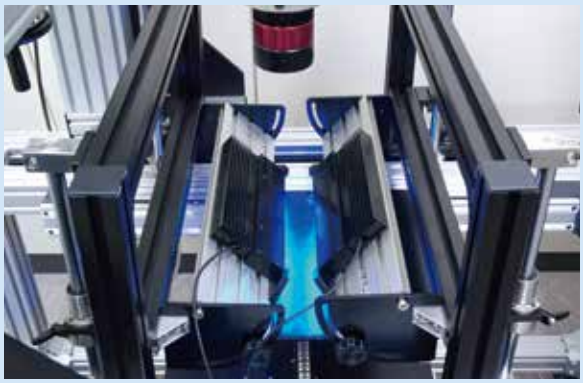
It is also applicable to various other imaging environments.

Cylindrical sample test bench

Installation example

Optical system (Lens)	Nikon Ai Micro-Nikkor 55mm f/2.8S Large format lens x 0.7
Camera	8,192 pixel line sensor camera
Test bench (Roller rotation test bench)	Hardware image processing board
Revolution speed (circumferential speed)	Ø30 mm → 314 mm/s (5,000 Hz) max. Ø40 mm → 418 mm/s (5,000 Hz) max.
Loading range	6 kg max.
Resolution	10 µm to 100 µm

Flat sample test bench



Installation example

Optical system (Lens)	Nikon Ai Micro-Nikkor 55mm f/2.8S Large format lens x 0.7
Camera	8,192 pixel line sensor camera
Image processing	Hardware image processing board
Uniaxial table	Stepping motor Stroke: 600 mm max, 50 mm/sec to 400 mm/sec
Resolution	10 µm x 10 µm to 100 µm x 100 µm
Variety of setups	Direct light setup, diffused light setup, transmitted light setup

In addition to the above, we have a wide variety of lenses and cameras. Please feel free to inquire.

2016 General Catalog of LED Lighting for Machine Vision Applications

LIGHTING SOLUTION

CCS website

http://www.ccs-grp.com/mv

CCS Inc.

CREATING CUSTOMER SATISFACTION

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Descriptions in this catalog are based on information available as of February 2016.
02001-02-1408

www.ccs-grp.com