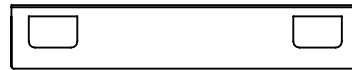
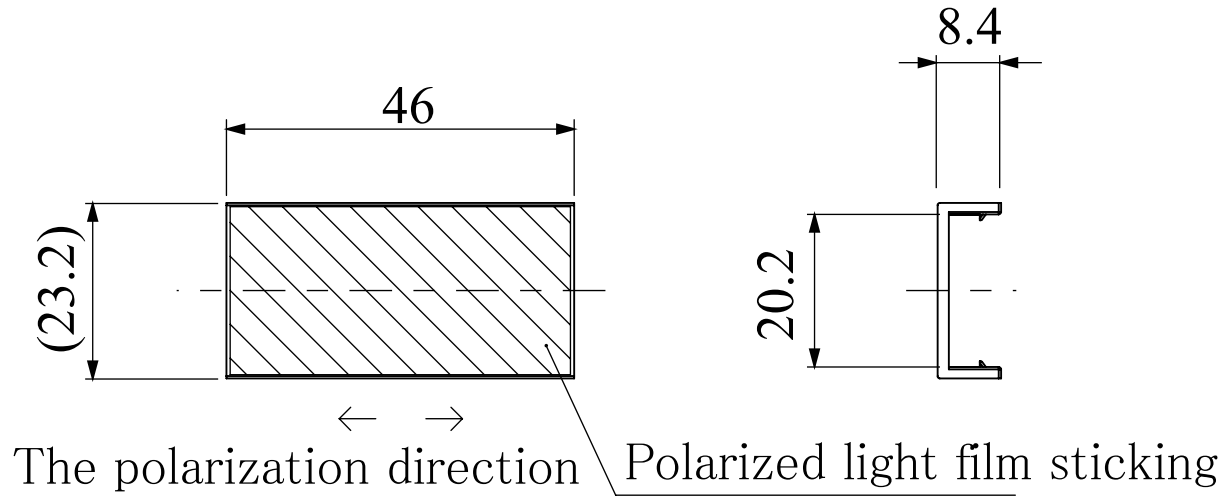
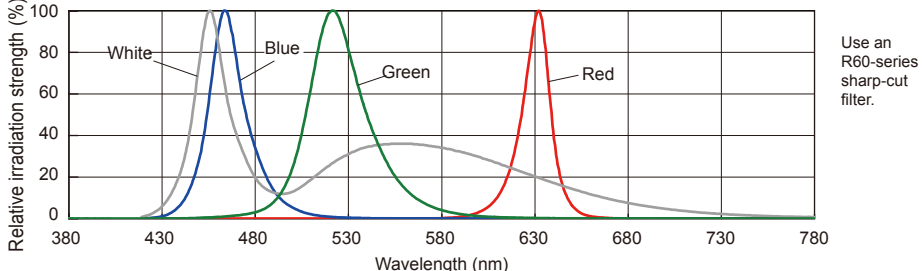


# PL-LDL2-41X16

Third Angle Projection Units: mm



## Common Specifications

LED color	Red (RD)	White (SW)	Blue (BL)	Green (GR)
Input voltage	24 V max.			
Peak wavelength (typ.)	635 nm	—	470 nm	525 nm
Relative color temperature (typ.)	—	6,600 K	—	—
Cable length	0.3 m			
Input connector	SMR-03V-B			
Polarity, signal	1: Anode (+) brown, 2: NC, 3: Cathode (-) blue			
Case material	Aluminum alloy			
Operating temperature and humidity	Temperature: 0 to 40°C, Humidity: 20% to 85% (with no condensation)			
Storage temperature and humidity	Temperature: -20 to 60°C, Humidity: 20% to 85% (with no condensation)			
Cooling method	Natural air cooling			
Spectral distribution	 <p>Use an R60-series sharp-cut filter.</p>			

Note: The values for irradiation strength and service life given in this catalog are for reference purposes. These values are not ensured.

### Precautions

- Carefully read the product's instruction manual before use to ensure correct operation.
- Product specifications and design are subject to change without notice.
- Examples of workpiece imaging in this catalog are a guide that may be informative for choosing Light Units. Please check the functions of the equipment and requirements before choosing a Light Unit.

**CCS Inc.**

#### Headquarters

Shimodachiuri-agaru, Karasuma-dori, Kamigyo-ku, Kyoto 602-8011 Japan

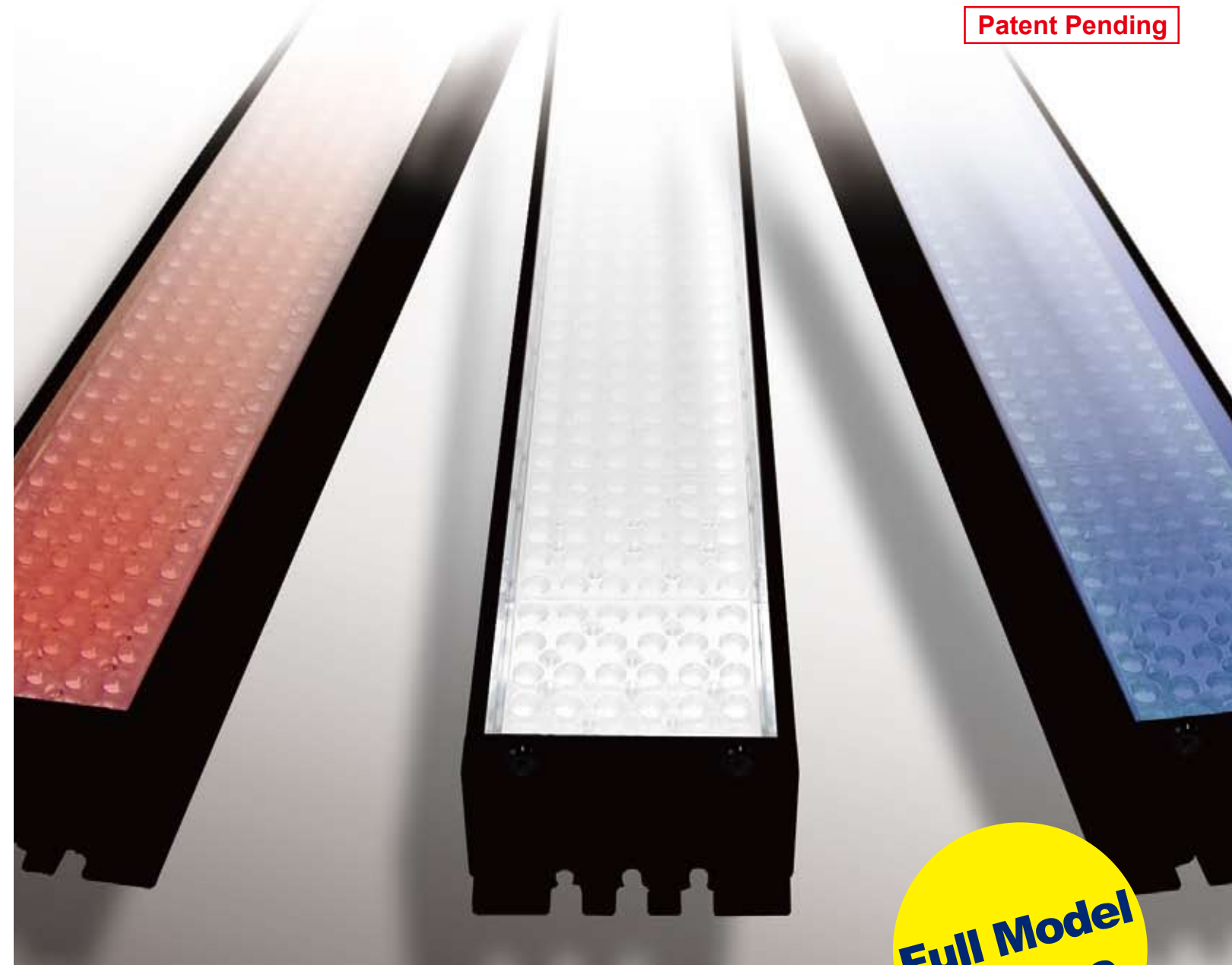
Phone: +81-75-415-8284 / Fax: +81-75-415-8278

URL: <http://www.ccs-grp.com> E-mail: [intlsales@ccs-inc.co.jp](mailto:intlsales@ccs-inc.co.jp)

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Descriptions in this catalog are based on information available as of October 2009. 02002-00-0910-LDL2

**CCS**  
CREATIVE CUSTOMER SATISFACTION

**LIGHTING SOLUTION**  
LED Illuminators for Machine Vision



**Full Model Change**

**New Generation LED Bar Light**

**New Bar Light Units with Direct Illumination**

# The New LDL2 Series

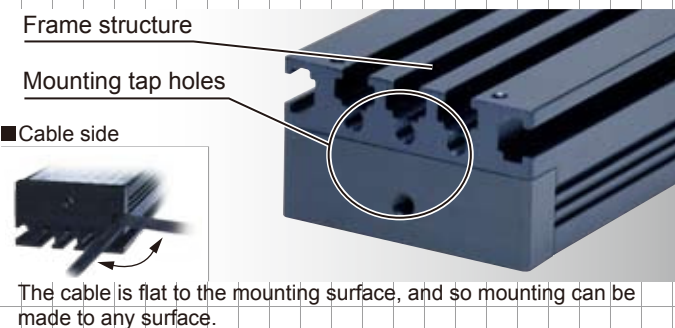
**CCS Inc.**

# Full Model Change — Five New Points —

## Point 1 — New Mounting Method

The new mounting method enables versatile mounting to match the installation environment.

+ Heat Dissipation Enhanced



You can select from two methods for greater mounting versatility to match your installation environments: the new frame structure mounting method or the conventional mounting holes.

With the new mounting method, you have freedom in adjusting the lighting position and mounting location by sliding the securing nuts into the internal grooves in the frame structure. The size of the internal grooves complies with JIS standard M3 nuts, which are commonly used. (Use JIS standard M3 nuts for mounting.)

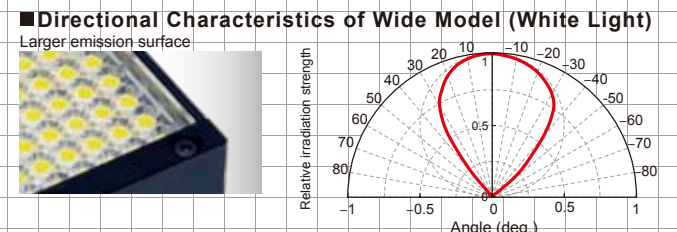
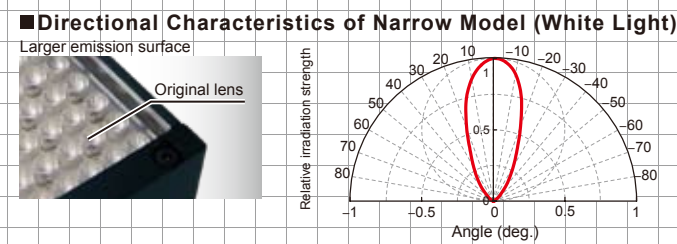
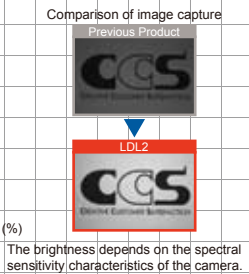
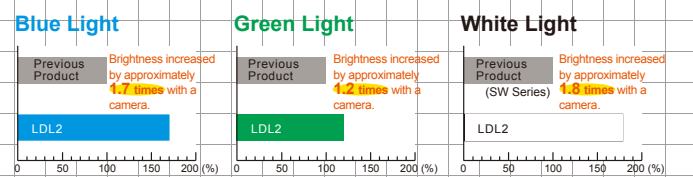
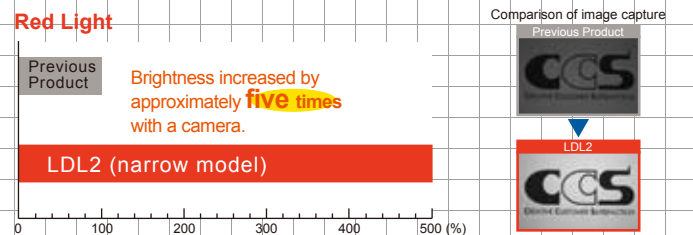
## Point 2 — High Output

Enhanced Output with Improved Light Emission Efficiency

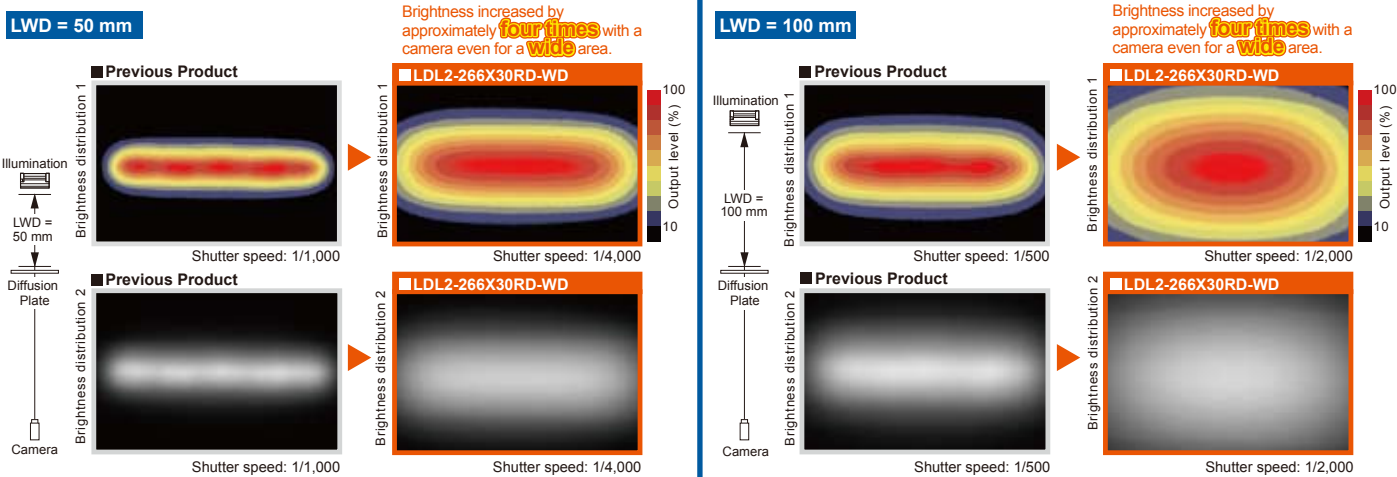
+ Selectable Directional Characteristics

A brightness of approximately five times is achieved over previous products for red light with a camera. Brightness has also been enhanced for white, blue, and green light.

Two models are available with different directional characteristics: the narrow model, which uses the original lens with directional characteristics similar to previous models, and a wide model, which has diffuse illumination in a wide range.



The wide model can provide uniform illumination in a wide area, which offers new usage of bar light. We recommend this new method using Bar Light Units

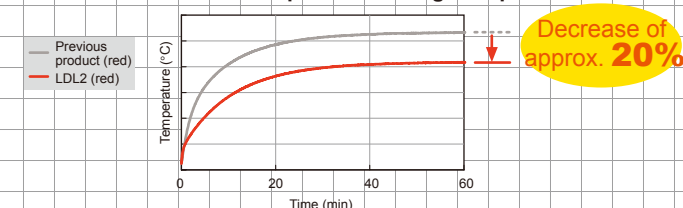


Note: 1)Relative sensor brightness measurement conditions: Intensity: 100%, Lens: F16-mm, Width: 775 mm, Field of vision: 303 x 227 mm. 2)The brightness depends on the spectral sensitivity characteristics of the camera. 3)The values given here are for reference purposes. Actual values may vary.

## Point 3 — Enhanced Heat Dissipation

Stable long-term performance with high-efficiency heat dissipation

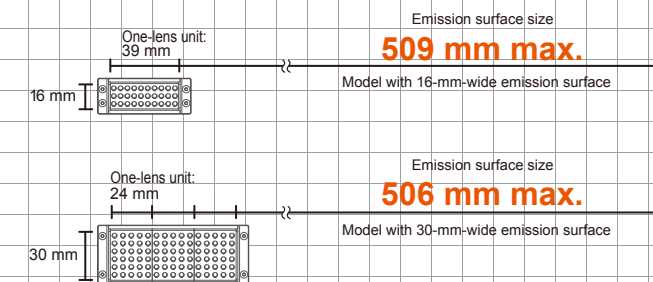
LED Section Temperature Change Graph



Using heat radiating fins and the frame structure increases the surface area by 40% over the previous model. This enables a decrease by approximately 20% of the LED mounting section temperature due to highly efficient heat radiation.

## Point 4 — Enhanced Customizability

Maximum emission surface size of 500 mm.



Using one lens of a standardized size enables flexible customizability. The specified length of light unit can be produced in the unit of one lens.

Note: For other lengths, contact your CCS sales representative.

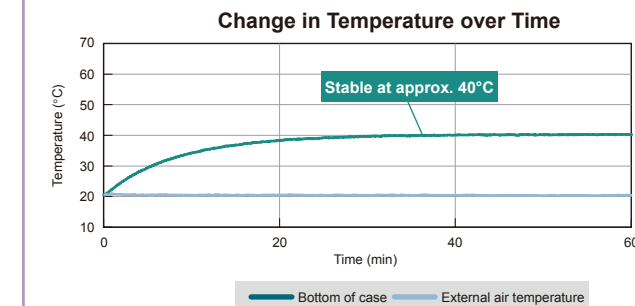
## Point 5 — 24-V Input For All Colors

The power that is supplied is the same for all light colors. Previously, 12 V was used only for red light, but the voltage is now 24 V for all colors.

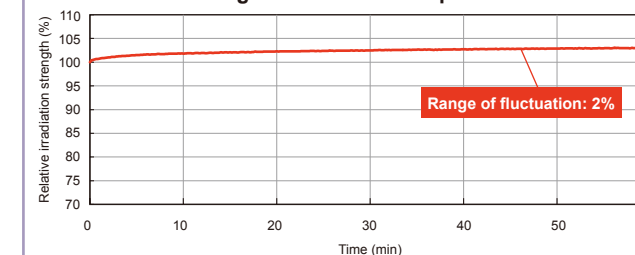
Data Typical Examples. There are virtually no changes in the graph values for the narrow model or changes that depend on whether optional products are mounted.

LDL2-41X16RD-WD (Red Light)

Actual values were measured using the LDL2-41X16RD-WD. (These values are for reference only.)

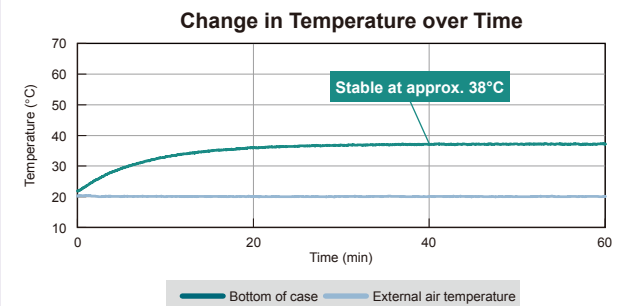


Change in Irradiation Output over Time

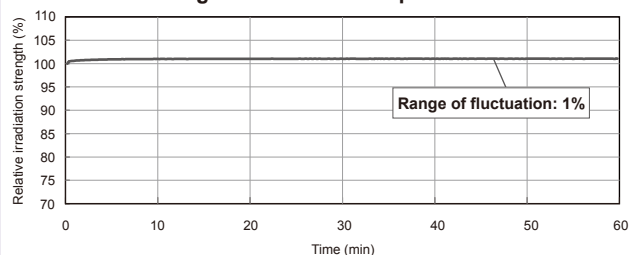


LDL2-41X16SW-WD (White Light)

Actual values were measured using the LDL2-41X16SW-WD. (These values are for reference only.)



Change in Irradiation Output over Time



Note: Graph measurement conditions: Actual measurement values: Intensity: 100%, External air temperature: 20°C (These values are for reference only.)

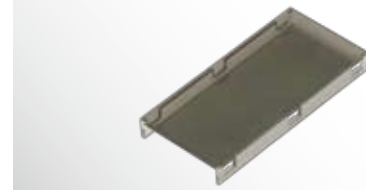
# Options

The Diffusion Plate and Polarizing Plate have been redesigned to use insertion fixing rather than the previous screw fixing method. Upgraded materials for the Diffusion Plate improve the rate of diffusion. Protective Plate is available protect the emission area of the Light Unit as well as brackets for securing the Light Unit to enable flexible adjustment of the emission direction.

## Diffusion Plate **DF-LDL2 Series**    Polarization Plate **PL-LDL2 Series**    Protective Plate **CV-LDL2 Series**



The irradiated light is diffused to limit workpiece glare and reflections.



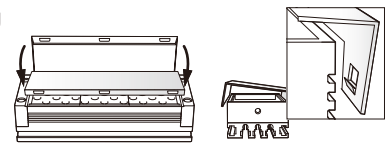
The light is polarized. You can prevent light reflection by fixing a PL-series polarization filter to the lens.



The plate protects the emission section of the Light Unit.

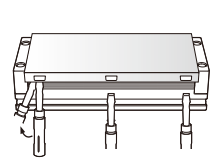
Note: The Protective Plate is not intended to provide protection against dust or water droplets.

### Mounting



● Insert the tabs into the side grooves.

### Removal



● Use a flat-blade screwdriver or other tool with a narrow point to catch the tabs and remove the Plate.

For details, refer to the instruction manual.

## Light Fixing Brackets **BK-LDL2 (for all models in Series)**

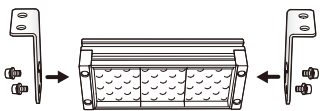


### Accessories

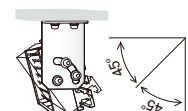
Fixing screws (M3): 8 + 1 (spare)

When you secure the light, the angle of the irradiation can be adjusted as desired. A variety of methods are available for securing the Light Units, such as parallel emission from two directions or enveloped emission from four directions.

### Mounting



● Install the brackets on both ends of the Light Unit.



● Adjust the emission angle and then firmly secure the Light Unit.

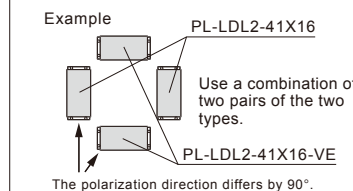
For details, refer to the instruction manual.

## Specifications of Special Options

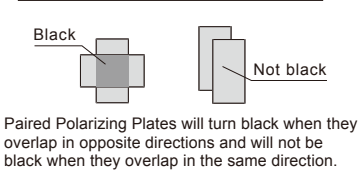
Name	Diffusion Plate	Polarizing Plate	Protective Plate	Light Fixing Brackets
Model name (for both narrow model and wide model)	DF-LDL2-41X16 DF-LDL2-80X16 DF-LDL2-119X16 DF-LDL2-74X30 DF-LDL2-146X30 DF-LDL2-218X30 DF-LDL2-266X30	PL-LDL2-41X16(-VE) PL-LDL2-80X16(-VE) PL-LDL2-119X16(-VE) PL-LDL2-74X30(-VE) PL-LDL2-146X30(-VE) PL-LDL2-218X30(-VE) PL-LDL2-266X30(-VE)	CV-LDL2-41X16 CV-LDL2-80X16 CV-LDL2-119X16 CV-LDL2-74X30 CV-LDL2-146X30 CV-LDL2-218X30 CV-LDL2-266X30	BK-LDL2 (for all models in Series)
Heat resistance	80°C	60°C	80°C	—

Two types of Polarizing Plate are available. Use combinations for the following cases.

### Mounting with Emission from Four Directions



### Differentiating Paired Polarizing Plates



# Product Lineup

The standard lineup now includes models with a length of 200 mm or more as well as models with an emission surface of 30 mm. The lineup includes combination of over 50 models with light colors in red, white, blue, and green, various sizes, and narrow models or wide models.

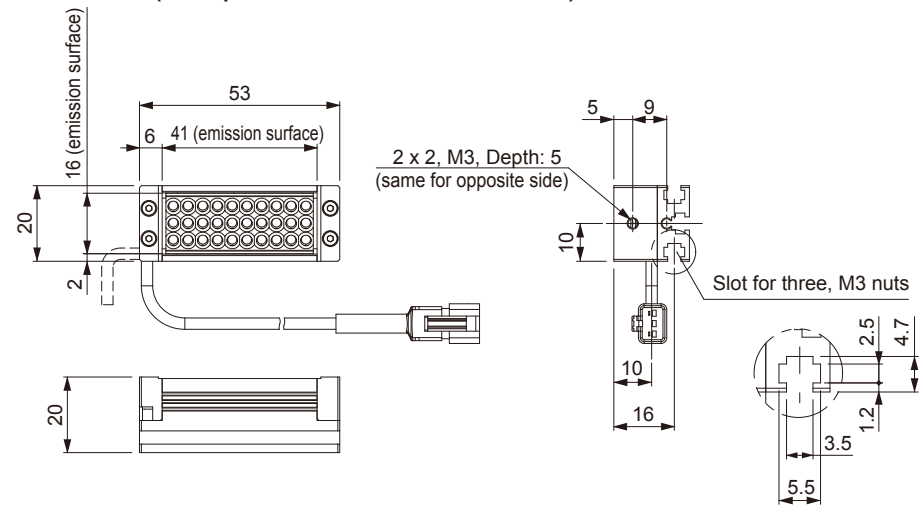
You can easily access information for the desired product by visiting the CCS website (Machine Vision Applications) and entering the seven-digit number into the direct number input space.

	Direct number	Model	LED color	Emission surface size	Input voltage	Power consumption	Weight	Supported options		
Model with 16-mm-wide emission surface	Narrow model	1003702	LDL2-41X16RD	Red	41x16 mm	24 V	1.9 W	50 g	Diffusion Plate	DF-LDL2-41X16
		1003705	LDL2-41X16SW	White					Polarizing Plate	PL-LDL2-41X16 (PL-LDL2-41X16-VE)
		1003704	LDL2-41X16BL	Blue					Protective Plate	CV-LDL2-41X16
		1003703	LDL2-41X16GR	Green					Light Fixing Brackets	BK-LDL2
		1003706	LDL2-41X16RD-WD	Red					Diffusion Plate	DF-LDL2-41X16
	Wide model	1003709	LDL2-41X16SW-WD	White	41x16 mm	24 V	1.9 W	50 g	Polarizing Plate	PL-LDL2-41X16 (PL-LDL2-41X16-VE)
		1003708	LDL2-41X16BL-WD	Blue	Protective Plate	CV-LDL2-41X16				
		1003707	LDL2-41X16GR-WD	Green	Light Fixing Brackets	BK-LDL2				
	Narrow model	1003710	LDL2-80X16RD	Red	80x16 mm	24 V	3.8 W	75 g	Diffusion Plate	DF-LDL2-80X16
		1003713	LDL2-80X16SW	White					Polarizing Plate	PL-LDL2-80X16 (PL-LDL2-80X16-VE)
		1003712	LDL2-80X16BL	Blue					Protective Plate	CV-LDL2-80X16
		1003711	LDL2-80X16GR	Green					Light Fixing Brackets	BK-LDL2
		1003714	LDL2-80X16RD-WD	Red					Diffusion Plate	DF-LDL2-80X16
	Wide model	1003717	LDL2-80X16SW-WD	White	80x16 mm	24 V	3.8 W	75 g	Polarizing Plate	PL-LDL2-80X16 (PL-LDL2-80X16-VE)
		1003716	LDL2-80X16BL-WD	Blue	Protective Plate	CV-LDL2-80X16				
1003715		LDL2-80X16GR-WD	Green	Light Fixing Brackets	BK-LDL2					
Narrow model	1003718	LDL2-119X16RD	Red	119x16 mm	24 V	5.7 W	95 g	Diffusion Plate	DF-LDL2-119X16	
	1003721	LDL2-119X16SW	White					Polarizing Plate	PL-LDL2-119X16 (PL-LDL2-119X16-VE)	
	1003720	LDL2-119X16BL	Blue					Protective Plate	CV-LDL2-119X16	
	1003719	LDL2-119X16GR	Green					Light Fixing Brackets	BK-LDL2	
Wide model	1003722	LDL2-119X16RD-WD	Red	119x16 mm	24 V	5.7 W	95 g	Diffusion Plate	DF-LDL2-119X16	
	1003725	LDL2-119X16SW-WD	White					Polarizing Plate	PL-LDL2-119X16 (PL-LDL2-119X16-VE)	
	1003724	LDL2-119X16BL-WD	Blue					Protective Plate	CV-LDL2-119X16	
	1003723	LDL2-119X16GR-WD	Green					Light Fixing Brackets	BK-LDL2	
Model with 30-mm-wide emission surface	Narrow model	1003726	LDL2-74X30RD	Red	74x30 mm	24 V	5.7 W	100 g	Diffusion Plate	DF-LDL2-74X30
		1003729	LDL2-74X30SW	White					Polarizing Plate	PL-LDL2-74X30 (PL-LDL2-74X30-VE)
		1003728	LDL2-74X30BL	Blue					Protective Plate	CV-LDL2-74X30
		1003727	LDL2-74X30GR	Green					Light Fixing Brackets	BK-LDL2
	Wide model	1003730	LDL2-74X30RD-WD	Red	74x30 mm	24 V	5.7 W	100 g	Diffusion Plate	DF-LDL2-74X30
		1003733	LDL2-74X30SW-WD	White	Polarizing Plate	PL-LDL2-74X30 (PL-LDL2-74X30-VE)				
		1003732	LDL2-74X30BL-WD	Blue	Protective Plate	CV-LDL2-74X30				
	Narrow model	1003731	LDL2-74X30GR-WD	Green	146x30 mm	24 V	12 W	170 g	Light Fixing Brackets	BK-LDL2
		1003734	LDL2-146X30RD	Red					Diffusion Plate	DF-LDL2-146X30
		1003737	LDL2-146X30SW	White					Polarizing Plate	PL-LDL2-146X30 (PL-LDL2-146X30-VE)
	Wide model	1003736	LDL2-146X30BL	Blue	146x30 mm	24 V	12 W	170 g	Protective Plate	CV-LDL2-146X30
		1003735	LDL2-146X30GR	Green	Light Fixing Brackets	BK-LDL2				
		1003738	LDL2-146X30RD-WD	Red	Diffusion Plate	DF-LDL2-146X30				
	Wide model	1003741	LDL2-146X30SW-WD	White	146x30 mm	24 V	12 W	170 g	Polarizing Plate	PL-LDL2-146X30 (PL-LDL2-146X30-VE)
		1003740	LDL2-146X30BL-WD	Blue	Protective Plate	CV-LDL2-146X30				
1003739		LDL2-146X30GR-WD	Green	Light Fixing Brackets	BK-LDL2					
1003742		LDL2-218X30RD	Red	218x30 mm	24 V	18 W	240 g	Diffusion Plate	DF-LDL2-218X30	
1003745		LDL2-218X30SW	White					Polarizing Plate	PL-LDL2-218X30 (PL-LDL2-218X30-VE)	
1003744	LDL2-218X30BL	Blue	Protective Plate					CV-LDL2-218X30		
1003743	LDL2-218X30GR	Green	Light Fixing Brackets					BK-LDL2		
1003746	LDL2-218X30RD-WD	Red	Diffusion Plate					DF-LDL2-218X30		
Wide model	1003749	LDL2-218X30SW-WD	White	218x30 mm	24 V	18 W	240 g	Polarizing Plate	PL-LDL2-218X30 (PL-LDL2-218X30-VE)	
	1003748	LDL2-218X30BL-WD	Blue	Protective Plate	CV-LDL2-218X30					
	1003747	LDL2-218X30GR-WD	Green	Light Fixing Brackets	BK-LDL2					
Narrow model	1003750	LDL2-266X30RD	Red	266x30 mm	24 V	21 W	280 g	Diffusion Plate	DF-LDL2-266X30	
	1003753	LDL2-266X30SW	White					Polarizing Plate	PL-LDL2-266X30 (PL-LDL2-266X30-VE)	
	1003752	LDL2-266X30BL	Blue					Protective Plate	CV-LDL2-266X30	
Wide model	1003751	LDL2-266X30GR	Green	266x30 mm	24 V	21 W	280 g	Light Fixing Brackets	BK-LDL2	
	1003754	LDL2-266X30RD-WD	Red	Diffusion Plate	DF-LDL2-266X30					
	1003757	LDL2-266X30SW-WD	White	Polarizing Plate	PL-LDL2-266X30 (PL-LDL2-266X30-VE)					
	1003756	LDL2-266X30BL-WD	Blue	Protective Plate	CV-LDL2-266X30					
	1003755	LDL2-266X30GR-WD	Green	Light fixing Brackets	BK-LDL2					

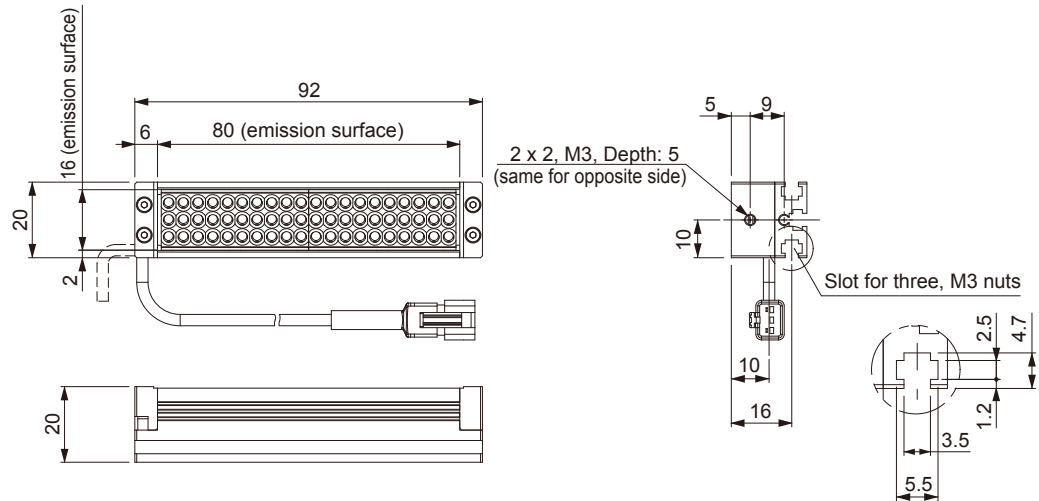
# Dimensional diagrams (mm)

## Model with 16-mm-wide emission surface

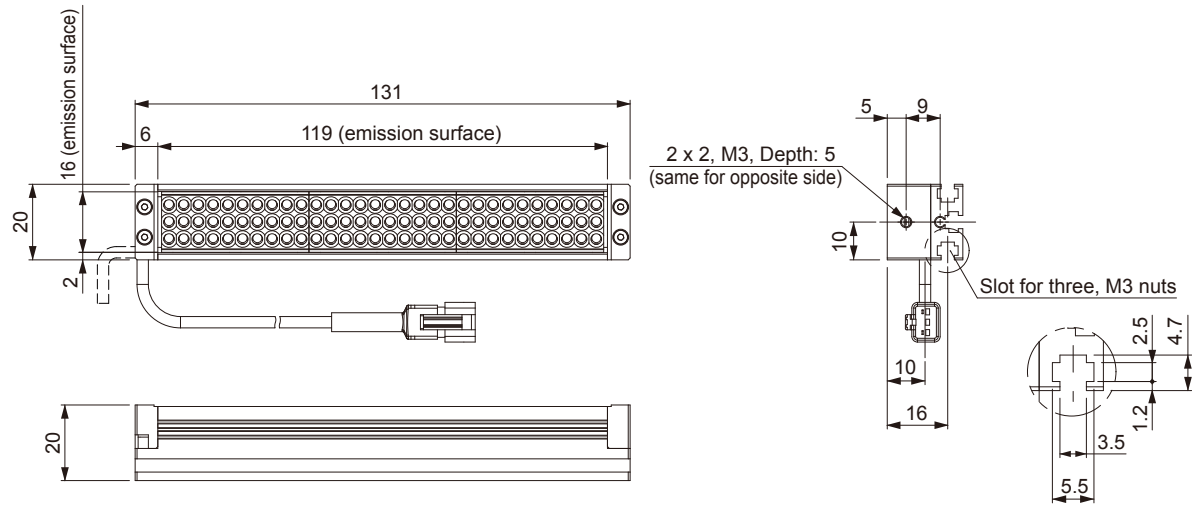
LDL2-41X16RD/SW/BL/GR (compatible with -WD models)



LDL2-80X16RD/SW/BL/GR (compatible with -WD models)

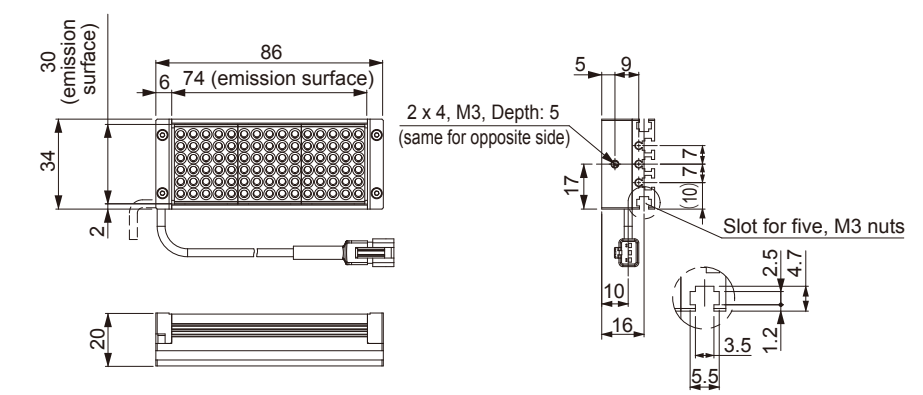


LDL2-119X16RD/SW/BL/GR (compatible with -WD models)

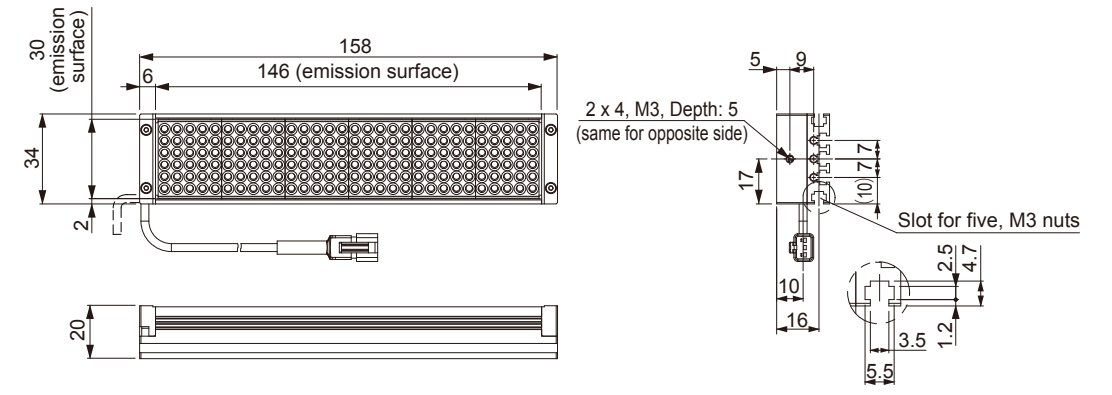


## Model with 30-mm-wide emission surface

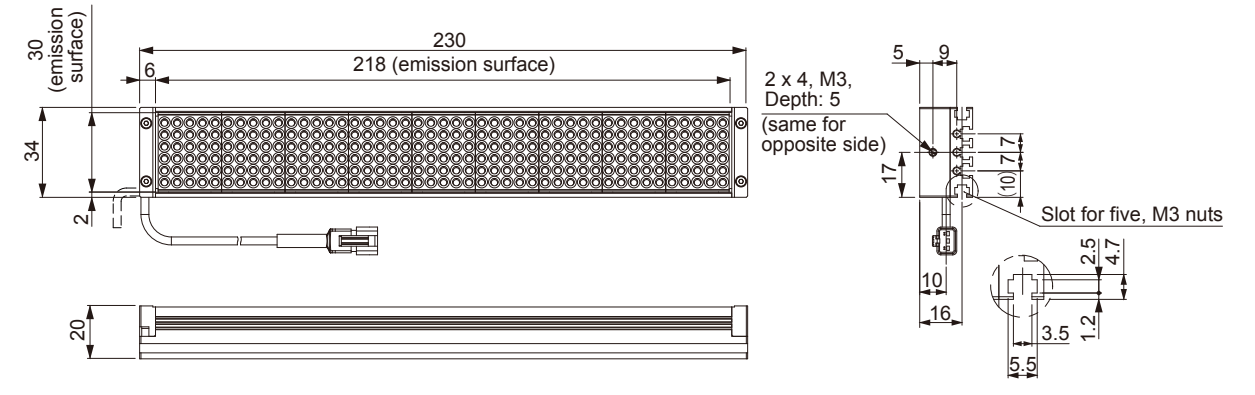
LDL2-74X30RD/SW/BL/GR (compatible with -WD models)



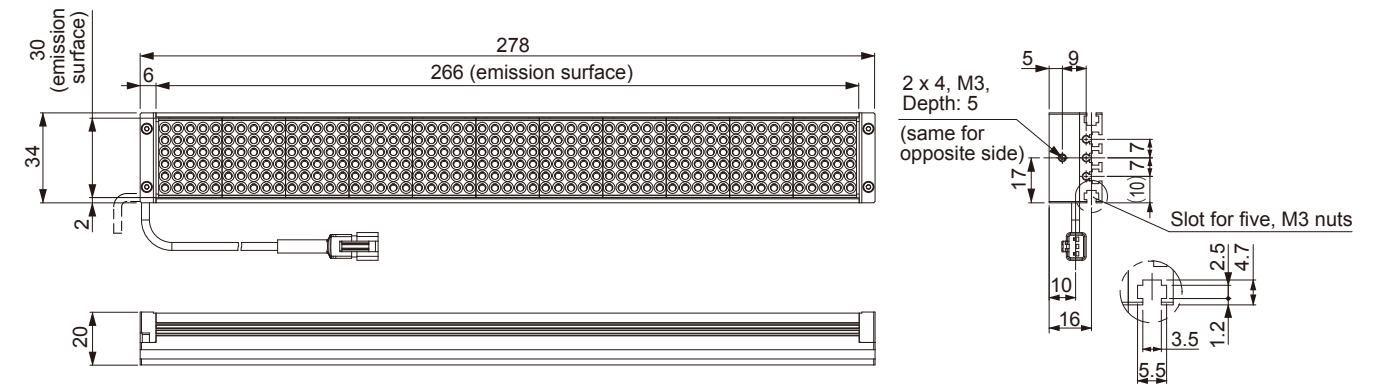
LDL2-146X30RD/SW/BL/GR (compatible with -WD models)



LDL2-218X30RD/SW/BL/GR (compatible with -WD models)

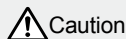


LDL2-266X30RD/SW/BL/GR (compatible with -WD models)



# Direct Lighting Bar Lights Operation guide for Optional products

Thank you for purchasing a CCS product. To ensure proper use of the product, please read this instruction guide before use and keep it for your future reference.



These Optional Products are designed for use with the LDL2 Series. Do not install these Optional Products on lights from any other series. Conform applicable models and use the LED Light correctly.

## 1. Product from the Model Number

□□ - LDL2 - ○○ X ○○

Model number of the applicable model

Note: For Light Fixing Brackets (BK), there is one common product only and it's model number is "BK-LDL2".

DF: Diffusion Plate PL: Polarizing Plate CV: Protective Plate BK: Light Fixing Brackets (Common for all LDL2 series.)

Two or more options of diffusion plates, polarizing plates, and protective plates cannot be used for a light at the same time, altogether.

## 2. Summary

**Diffusion Plate DF-LDL2 Series**

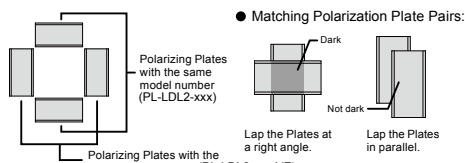
Diffuses direct light. This enables uniform lighting of workpieces.

**Polarizing Plate PL-LDL2 Series**

Light is directly polarized by transmission through the polarizing plate. Prevent light reflection by using the polarizing plate together with the polarizing filter (PL Series) mounted to the lens.

**Method of Combination**

When using four polarized lights as below, opposing lights should have the same plane of polarization.



Polarizers with matching polarization planes will form a dark area when they are overlapped at a right angle. They will not form a dark area when overlapped in parallel.

**Protective Plate CV-LDL2 Series**

Protects the light-emitting part of the Light.

Note: It is not available to use this product for protection use from any damages caused by dust, water and etc.

**Light Fixing Brackets BK-LDL2 (Common for all LDL2 series.)**

The Fixing Brackets with the adjustable setting of the irradiation angle.

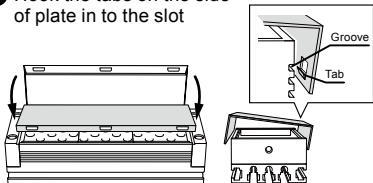
- 1 -

## 3. Attachment Procedure

Diffusion Plate, Polarizing Plate, and Protective Plate

① Hook the tabs on the side of plate in to the slot

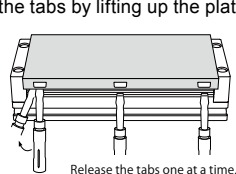
② Press down the edge of the opposite side.



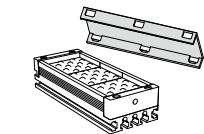
**How to Remove**

① Using an appropriate tool, such as a flat-blade screwdriver, to remove the tabs by lifting up the plate.

② Then Plate can be removed after all tabs on the one side are free.



Release the tabs one at a time.

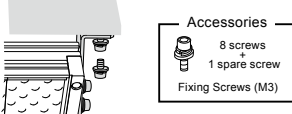
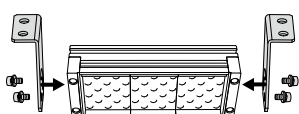


Be careful not to damage the tabs or other parts when removing the Plate.

**Light Fixing Brackets**

① Screw the Fixing Brackets on the both sides of the Light as temporary.

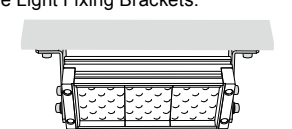
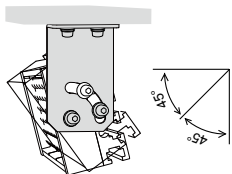
② Temporarily secure the Brackets on the installation position.



Accessories  
8 screws  
1 spare screw  
Fixing Screws (M3)

③ Adjust the lighting angle.

④ Tighten all screws to fix the angle and the Light Fixing Brackets.



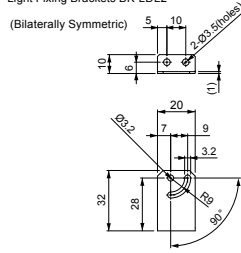
Be sure to mount the Fixing Brackets to the tap holes on both sides.

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## 4. Specifications and Dimensions (mm)

Product name	Diffusion Plate	Polarizing Plate	Protective Plate	Light Fixing Brackets	
Model (Same for Narrow and Wide Models.)	DF-LDL2-41X16 DF-LDL2-80X16 DF-LDL2-119X16 DF-LDL2-218X30 DF-LDL2-266X30	DF-LDL2-74X30 DF-LDL2-146X30 DF-LDL2-218X30 DF-LDL2-266X30	PL-LDL2-41X16 (VE) PL-LDL2-80X16 (VE) PL-LDL2-119X16 (VE) PL-LDL2-218X30 (VE) PL-LDL2-266X30 (VE)	CV-LDL2-41X16 CV-LDL2-80X16 CV-LDL2-119X16 CV-LDL2-218X30 CV-LDL2-266X30	BK-LDL2 (Common for all LDL2 series.)
Allowable temperature limit	80°C	60°C	80°C		

Light Fixing Brackets BK-LDL2



Refer to the dimensions of the Light for the dimensions of the Diffusion Plate, Polarizing Plate, and Protective Plate.

Polarizing plates are wear and tear items. Replace them periodically. If the polarizing plates are discolored or deformed upon inspection, replace them with brand new polarizing plates. It is recommended that you keep some extra polarizing plates.

## 5. EU RoHS Directive

The RoHS Directive is short for the "restriction of use of certain hazardous substances in electrical and electronic equipment." As a directive, it restricts the use of specific hazardous substances for new electrical and electronic equipment marketed in the EU on or after July 1, 2006, and restricts the use of six substances, which are (1) lead, (2) mercury, (3) cadmium, (4) hexavalent chromium, (5) polybrominated biphenyl (PBB), and (6) polybrominated diphenyl ether (PBDE).

\*Standards for "RoHS Directive-Compliant Products"

Lead	Mercury	Cadmium	Hexavalent chromium	PBB	PBDE
1000ppm Min	1000ppm Min	100ppm Min	100ppm Min	1000ppm Min	1000ppm Min

(Items that are exempted in the RoHS Directive are excluded from these standards.)

## 6. China RoHS Directive

China RoHS Directive is formally known as "Management Methods for Controlling Pollution by Electronic Information Products", which was implemented on March 1, 2007 in China. Same as EU RoHS Directive, this regulation restricts the usage of six substances such as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE). This regulation requires electronic information products which are manufactured or imported, and sold in China, to clearly disclose contents of the 6 restricted substances listed below.

Name and amount of toxic and hazardous substances or elements, which products contain

Usage Deadline for Environmental Protection	Product name	Toxic or Hazardous Substances and Elements					
		Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	PBB	PBDE
10	Optional products	X	O	X	O	O	O

O: Indicates that this toxic or hazardous substances contained in all the homogeneous materials for this part, according to SJ/T11363-2006 is within the limit requirement.  
X: Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to SJ/T11363-2006, is over the limit requirement.  
\*Lead and cadmium are excluded in EU RoHS.

Usage deadline for environmental protection  
The number used in this logo is based on "Management Methods for Controlling Pollution by Electronic Information Products" and related regulations from People's Republic of China. It shows the product usage duration in years for environmental protection. After finishing a product usage, the product need to be re-used or discard appropriately following local law and regulations, complying with safety and usage caution.

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产品中有毒有害物质或元素的名称及含量

环保使用期限	产品	有毒有害物质或元素					
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
10	任选条件	X	O	X	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。  
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。  
注: 铅和镉中的 "X", 根据 RoHS 法规, 使用 "O" 表示。

环保使用期限  
此标志的数字是根据中华人民共和国电子产品污染控制管理办法以及有关标准, 表示该产品的环保使用期限的年限。  
遵守产品的安全和使用的注意, 在产品使用后采取适当的方法根据各地法律, 规定, 回收再利用或进行废弃处理。

## Warranty Information

EXCEPT FOR THE EXPRESS WARRANTIES STATED IN THIS AGREEMENT, COMPANY MAKES NO ADDITIONAL WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO ANY MATTER WHATSOEVER. IN PARTICULAR, ANY ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. EXCEPT AS EXPRESSLY SET FORTH HEREIN, COMPANY MAKES NO WARRANTIES WITH RESPECT TO THE PRODUCTS.

**WARRANTY PERIOD: SIX MONTHS, 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 SUBJECT 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 A 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.

Please contact CCS for product information, and further information.

The Instruction Guide is available from CCS's website as well.

<http://www.ccs-inc.co.jp>

**CCS CCS Inc.**

Headquarters  
Shimodachiuri-agaru, Karasuma-dori, Kamigyo-ku, Kyoto 602-8011 Japan  
Phone : +81-75-415-8284 Fax : +81-75-415-8278

E-mail : [intlsales@ccs-inc.co.jp](mailto:intlsales@ccs-inc.co.jp)

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Descriptions in this instruction guide are based on information available as of February 2009. KZ02524-T001-000

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