

# Operation Guide for Optional Products

Thank you for purchasing a CCS product. To ensure proper use of the product, please read this operation 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 Light Units from any other series. Conform applicable models and use the Light Unit correctly.
- Two or more options of diffusion plates, polarizing plates, and protective plates cannot be used for a Light Unit at the same time.
- Periodically inspect optional products such as polarization and diffusion plates as all of these are consumables. Replace any products that show discoloration or deformation during inspection. CCS recommends maintaining extra optional products on-hand in order to be prepared for replacement.

## Description of Model Names

### I Diffusion plates, Polarizing plates, and Protective plates

□□ - LDL2 - ○○X○○ - △△

#### Option name

DF: Diffusion plate  
PL: Polarizing plate  
CV: Protective plate

#### Model number of the applicable model

#### Polarizing direction (for Polarizing plate)

HO or Model none:  
Light is polarized parallel to the longer edge of the plate.  
VE:  
Light is polarized parallel to the shorter edge of the plate.

### I Separate brackets

BK - LDL2

### I Integrated brackets

BK - LDQ2 - ○○○○

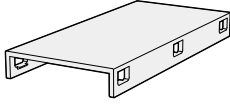
Note: The separate brackets are not applicable for the LDL2-19X4 and LDL2-33X8 Series.

Light Unit size

## 1 Lineup

### 1 Diffusion Plate DF-LDL2 Series

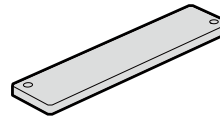
Diffuses direct light. This enables uniform lighting of inspection object.



Model	Allowable temperature limit
DF-LDL2-41X16	80°C
DF-LDL2-80X16	
DF-LDL2-119X16	
DF-LDL2-158X16	
DF-LDL2-26X30	
DF-LDL2-50X30	
DF-LDL2-74X30	
DF-LDL2-98X30	
DF-LDL2-122X30	
DF-LDL2-146X30	
DF-LDL2-218X30	
DF-LDL2-266X30	

### 6 Diffusion Plate DF-LDL2-19X4, DF-LDL2-33X8

Diffuses direct light. This enables uniform lighting of inspection object.



Model	Allowable temperature limit
DF-LDL2-19X4	60°C
DF-LDL2-33X8	

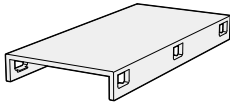
#### Accessories

M2x6 low-head screws  
(2 screws + 1 spare screw)

Note: The Diffusion Plate cannot be used for an Infrared Light.

### 2 Polarizing Plate PL-LDL2 Series

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

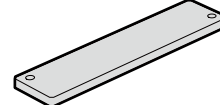


Model	Allowable temperature limit
PL-LDL2-41X16-△△	60°C
PL-LDL2-80X16-△△	
PL-LDL2-119X16-△△	
PL-LDL2-158X16-△△	
PL-LDL2-26X30-△△	
PL-LDL2-50X30-△△	
PL-LDL2-74X30-△△	
PL-LDL2-98X30-△△	
PL-LDL2-122X30-△△	
PL-LDL2-146X30-△△	
PL-LDL2-218X30-△△	
PL-LDL2-266X30-△△	

△△ = "Model none" or "VE"  
Refer to the above article: *Description of Model Names*.

### 7 Polarizing Plate PL-LDL2-19X4, PL-LDL2-33X8

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



Model	Allowable temperature limit
PL-LDL2-19X4-△△	60°C
PL-LDL2-33X8-△△	

△△ = "HO" or "VE"  
Refer to the above article: *Description of Model Names*.

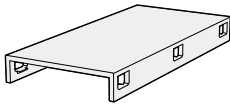
#### Accessories

M2x6 low-head screws  
(2 screws + 1 spare screw)

Note: The Polarizing Plate cannot be used for an Infrared Light.

### 3 Protective Plate CV-LDL2 Series

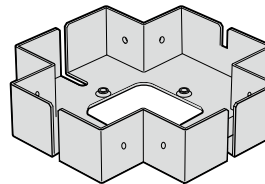
Protects the light-emitting part of the Light Unit.  
Note: It is not available to use this product for protection use from any damages caused by dust, water and etc.



Model	Allowable temperature limit
CV-LDL2-41X16	80°C
CV-LDL2-80X16	
CV-LDL2-119X16	
CV-LDL2-158X16	
CV-LDL2-26X30	
CV-LDL2-50X30	
CV-LDL2-74X30	
CV-LDL2-98X30	
CV-LDL2-122X30	
CV-LDL2-146X30	
CV-LDL2-218X30	
CV-LDL2-266X30	

### 8 Bracket BK-LDQ2-33X8

This bracket can be used to mount four Bar Lights. The irradiation angle is adjustable.



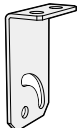
Model	Allowable temperature limit
BK-LDQ2-33X8	-

#### Accessories

M2x5 screws  
M2 washers  
(8 each + 1 spare screw)

### 4 Brackets (Set of two brackets) BK-LDL2

This brackets with the adjustable setting of the irradiation angle.



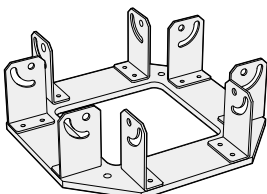
Model	Allowable temperature limit
BK-LDL2	-

#### Accessories

M3 screws  
(8 screws + 1 spare screw)

### 5 Bracket BK-LDQ2 Series

This bracket can be used to mount four Bar Lights. The irradiation angle is adjustable.



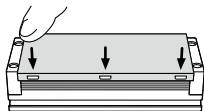
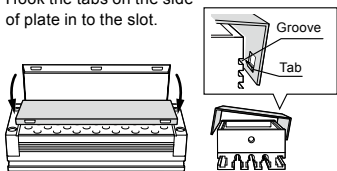
Model	Allowable temperature limit
BK-LDQ2-41X16	-
BK-LDQ2-80X16	
BK-LDQ2-119X16	
BK-LDQ2-158X16	
BK-LDQ2-74X30	
BK-LDQ2-98X30	
BK-LDQ2-122X30	
BK-LDQ2-146X30	
BK-LDQ2-218X30	
BK-LDQ2-266X30	

#### Accessories

M3 screws  
(16 screws)

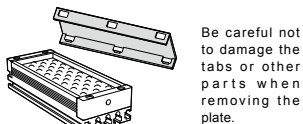
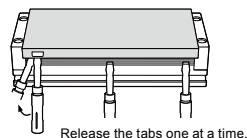
**Diffusion Plate, Polarizing Plate, and Protective Plate**

- 1 Hook the tabs on the side of plate in to the slot.
- 2 Press down the edge of the opposite side.



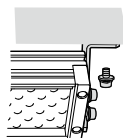
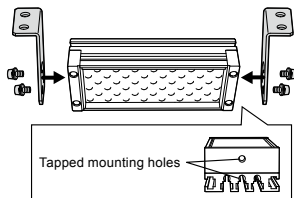
**How to Remove**

- 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.



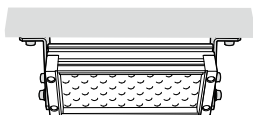
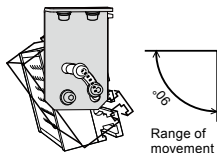
**Brackets (BK-LDL2)**

- 1 Place one bracket on either side of the Bar Light. Place the screws into the tapped mounting holes on the Bar Light and temporarily tighten them.
- 2 Secure the brackets to the installation location.



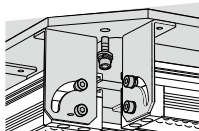
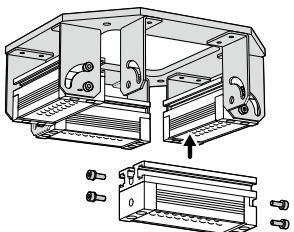
**Required Parts**  
The M3 screws must be provided by the customer.

- 3 Adjust the lighting angle.
- 4 Tighten all of the M3 screws to secure the Bar Light to the bracket.



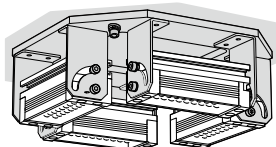
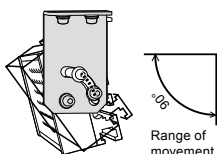
**Brackets (BK-LDQ2 Series)**

- 1 Place the Bar Lights into the four sides of the bracket. Place the screws into the tapped mounting holes on the Bar Light and temporarily tighten them.
- 2 Secure the bracket to the installation location.



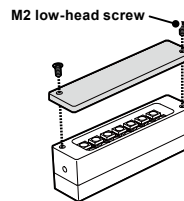
**Required Parts**  
The M4 screws must be provided by the customer.

- 3 Adjust the lighting angle.
- 4 Tighten all of the M3 screws to secure the Bar Lights to the bracket.



**Diffusion Plate and Polarizing Plate (xx-LDL2-19X4, xx-LDL2-33X8)**

- 1 Tighten all M2 screws to fix the plate.



• The diffusion plate has a front side and a back side. Install it with the glossy, smooth side facing the LEDs.  
• Recommended tightening torque: 0.06 N·m

**Brackets (BK-LDQ2-33X8)**

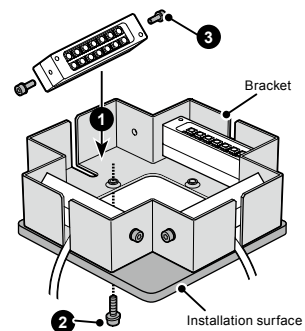
- 1 Place the Bar Lights into the four sides of the bracket. Place the screws into the tapped mounting holes on the Bar Light and temporarily tighten them.

- 2 Secure the bracket to the installation location.

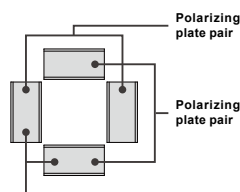
**Required Parts**  
The M3 screws that are no more than 4 mm longer than the thickness of the installation surface must be provided by the customer.

Recommended tightening torque: 0.4 N·m

- 3 Adjust the lighting angle and tighten all of the M2 screws to secure the Bar Lights to the bracket.



**Method of Combination**



There are two types of polarizing plates. When light is radiated from four directions, use a pair of the same type of polarizing plates on the left and right and a pair of the other type on the top and bottom.

**How to Recognize a Polarizing Plate Pair**

Dark

Not dark

Lap the plates at a right angle.

Lap the plates in parallel.

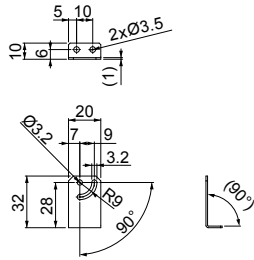
A corresponding pair of polarizing plates will form a dark area when they are overlapped at a right angle. They will not form a dark area when overlapped in parallel.

If you lay adjacent polarizing plates at a right angle to each other, the overlapping portion will not be dark. If you lay them in parallel, the overlapping portion will be dark.

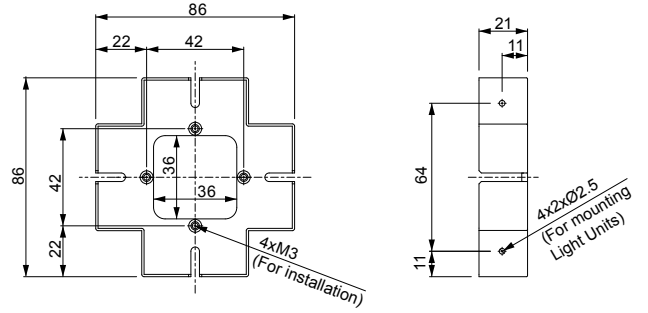
### 3 Bracket Dimensions (mm)

**BK-LDL2**

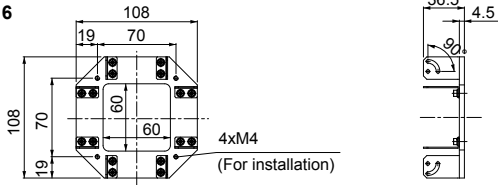
(Bilaterally Symmetric)



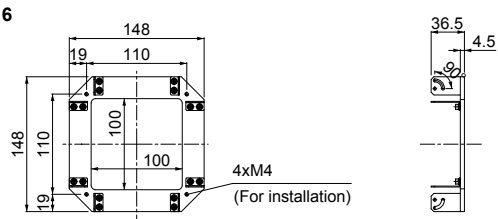
**BK-LDQ2-33X8**



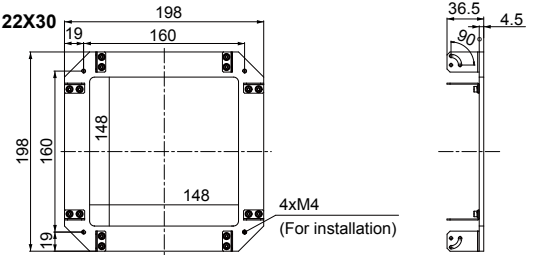
**BK-LDQ2-41X16**



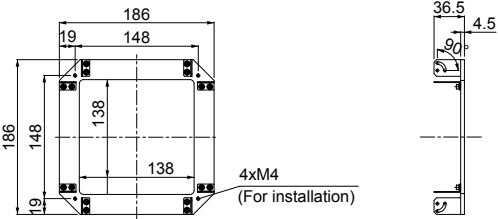
**BK-LDQ2-80X16**



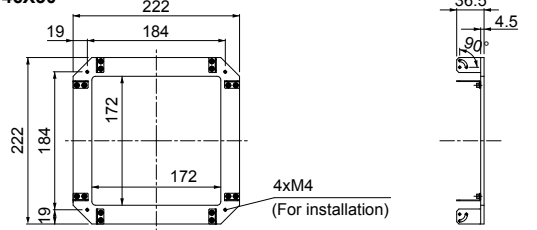
**BK-LDQ2-122X30**



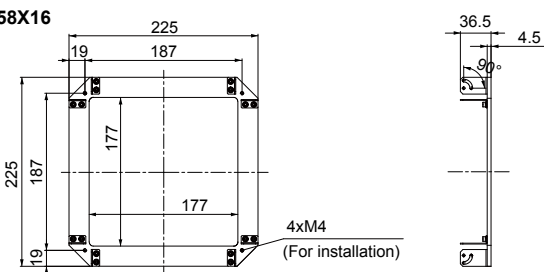
**BK-LDQ2-119X16**



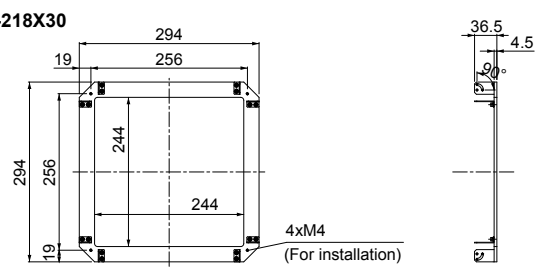
**BK-LDQ2-146X30**



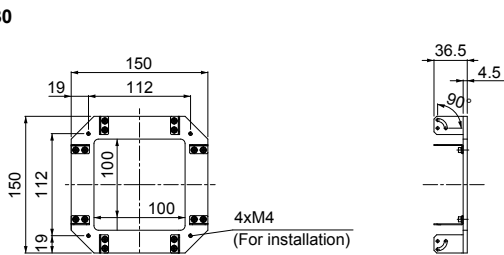
**BK-LDQ2-158X16**



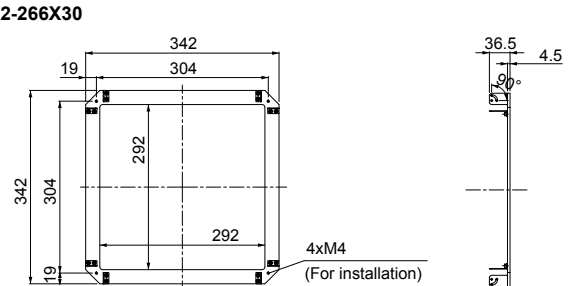
**BK-LDQ2-218X30**



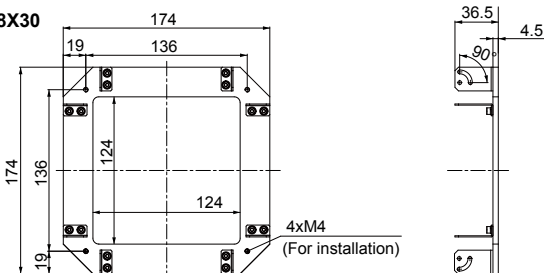
**BK-LDQ2-74X30**



**BK-LDQ2-266X30**



**BK-LDQ2-98X30**



- Note:**
- Refer to the dimensions of the Light Unit for the dimensions of the Diffusion Plate, Polarizing Plate, and Protective Plate.
  - The holes for mounting the Light Units on the BK-LDQ2 Series have the same specifications as the BK-LDL2.

## 4 Environmental Regulation

### 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 max.	1000ppm max.	100ppm max.	1000ppm max.	1000ppm max.	1000ppm max.

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

### 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


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
	Optional products	×	○	×	○	○	○

○: 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.  
 ×: 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 needs to be re-used or discarded appropriately following local law and regulations, complying with safety and usage caution.

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)
	任选附件	×	○	×	○	○	○

○: 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。  
 ×: 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 "×", 因欧洲 RoHS 没限定, 故用 "○" 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信息产品污染控制管理办法以及有关标准等, 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 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: 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 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 SIX MONTHS.

2 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.

3 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.

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- Illustrations used in this Instruction Guide may differ from actual products.
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- Instruction Guide and Dimensional Diagrams in PDF or CAD can be downloaded from the CCS website. <http://www.ccs-grp.com>

Ask any product queries to the following address or to your nearest CCS representative.



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 Use our website to find your nearest CCS representative. <http://www.ccs-grp.com/mvad>