

Instruction Guide



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.

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Important Information for Equipment Safety - Read Before Use -

This product has been designed with full consideration of safety. Incorrect usage of the product may result in fire, electric shock, or other serious damages. Please ensure to follow the conditions below.

■ The following symbols are used in this instruction guide to indicate and classify the relative importance of warnings and cautions.

Warning	Indicates that incorrect usage may result in serious injury or death.	Caution	Indicates that incorrect usage may result in injury or property damage.
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■ The following symbols in the instruction guide indicate and classify the precautions.

PROHIBITED	DISASSEMBLY PROHIBITED	DO NOT TOUCH WITH WET HANDS	DO NOT SUBJECT TO MOISTURE	INSTRUCTED
These symbols mean the prohibited action.				This symbol means the necessary action must obey.

Warning	
Do not disassemble or modify the product. Doing so may result in fire or electric shock.	LED light radiation may cause corneal or retinal abnormalities if you look directly at the light. To prevent harmful light exposure, never look directly at the LED light.
Do not touch the product with wet hands. Doing so may result in electric shock.	This product generates high temperatures. Do not touch the product while it is turned on or immediately after it is turned off, or burning may result. Provide cooling with a fan or other ventilation if the product is to be used in a closed space.
Make sure that the product is free of moisture or any liquid. Exposure to water may result in fire, electric shock.	Connect or disconnect the light cable only after turning off the power source. Failure to do so may result in circuit damage, fire caused by a minute spark, or electric shock.
If abnormal condition occurs such as fuming, heat, smell, noise, or so on, stop using the product immediately, and turn off the power source. A fire or electric shock may result if the product is kept used.	

Caution	
Do not use user-made cables. Doing so may cause product failure. Use the CCS extension cable if it is necessary to extend the distance between the light and the control unit.	Use a control unit that is suitable for the product ratings. Using an incorrect control unit can cause product failure.
Be careful of static electricity. Damage to the LED light may occur, if a person charged with static electricity touches it. Keep the product away from all items charged with static electricity.	Use a standard Extension Cable that is manufactured by CCS. However, if the cable is too long, the light intensity will decrease due to the DC resistance of the cable.
Do not drop the product or subject it to impact. Doing so may cause the product to malfunction.	

■ Do not use the product in the following situations.

- Under conditions or in an environment not described in this instruction guide.
- In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
- In applications involving serious risk to life or property, particularly applications demanding a high level of safety.

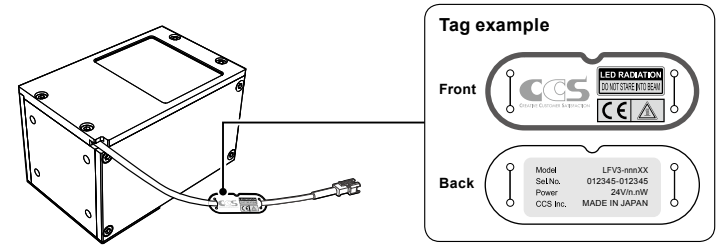
■ Please install the product to locations with following conditions.
Incorrect installation location may cause product failure.

- | | |
|--|---|
| • In a flat and stable location with minimal vibration. | • Places free from any water, oil, liquid, chemical, or steam. |
| • Well-ventilated places with minimal dust. | • Places free from corrosive or combustible gas. |
| • Places that are not subject to sudden temperature changes. | • Places away from water faucets, boilers, humidifiers, air conditioners, heaters, or stoves. |

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Confirming Product Information

The following tag is attached to the cable on the LED Light. The color of the label indicates the luminescence color of the Light. The back of the tag there is a name label that gives the model number, power consumption, and serial number. Be sure to check the contents before using the product and handle the label with care. If the label is missing or damaged and the contents cannot be checked, please contact CCS Inc.



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Operating Instructions

1 Connect the light cable of the product to the control unit.

- Connect to the control unit equipped with **SMP-03V-BC** Connectors for power output.

For information on applicable Control Units and cables, refer to the product catalogs or the CCS website.

2 Turn ON the control unit to turn ON the light.

Read the instruction guide of the control unit before use.

3 Adjust light range, light angle, and radiant quantity to optimize images.

When using color image processing equipment, readjust the white balance of the camera according to the operating conditions.

4 Make sure that the control unit is turned OFF before connecting.

■ Changing the Position of the Diffuser

You can change the position of the diffuser from the default position to adjust the uniformity and intensity of the light. To change the position, move the diffuser to another slit.
(Applicable models: LFV3-50, 50x100, 70, 100, 130, 200)

1. Remove the metal plate cover.
* Make sure that the LED base plate and diffuser do not slip off.

2. Pull out the diffuser and insert it into one of the other slits.
* Do not insert the diffuser into the mounting slit for the polarizer/light control film.

3. Attach the metal plate cover.

Mounting slits for diffuser
For LFV3-50, 50x100, 70: 3 slits
For LFV3-100, 130, 200: 5 slits

Mounting slit for polarizer/light control film

- The diffuser has a front side and a back side. Install it with the glossy, smooth side facing the LED base plate.
- The uniformity and intensity of the light depend on the distance between the slit and the LED base plate.

Slit	Close to the LED base plate	Away from the LED base plate
Uniformity	Low	High
Intensity	High	Low

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Operating Instructions (Continued)

■ Optional Accessories (Sold Separately)

The following optional products are available as required.
(Applicable models: LFBV3-35, 50, 50x100, 70, 100, 130, 200)

Product name	Model
Polarizer	PL-LFBV3-35, 50, 50x100, 70, 100, 130, 200
Light Control Film	LC-LFBV3-35, 50, 50x100, 70 ,100, 130, 200
Diffuser	DF-LFBV3-35, 50, 50x100, 70, 100, 130, 200 DF-LFBV3-35-UF, 50-UF, 50x100-UF, 70-UF, 100-UF, 130-UF, 200-UF

Refer to “Operation Guide for Optional Products” before using optional products.

■ Precautions

- Ghost images (double vision) of the inspection object may appear due to reflection from the half mirror inside the light. It is impossible to remove these images because of the characteristics of the light.
(Relevant models: LFBV3-34, 35, 40, 50, 50x100, 70, 100, 130, 200)
- An image of the emitting surface of the light may be reflected by the inspection object. In that case, install an optional light control film into the light.
(Applicable models: LFBV3-35, 50, 50x100, 70, 100, 130, 200)

- Dust, dirt, or fingerprints on the glass portions of the light may affect the captured image. In that case, clean the light as follows:
 - Remove dust and dirt by blowing it off with air. Do not touch the light with your hand.
 - Use a soft, finely woven cloth to wipe away any marks, such as fingerprints.
 - Use a soft, finely woven cloth soaked with diluted neutral detergent to remove any heavy dirt.
- Also, handle the light with care during daily use. Make sure no dust, dirt, or fingerprints adhere to the light.

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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
	LED Lights	×	○	×	○	○	○
○: 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.							
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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)
	LED 照明	×	○	×	○	○	○
○：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数。 遵守产品的安全和使用上的注意，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。

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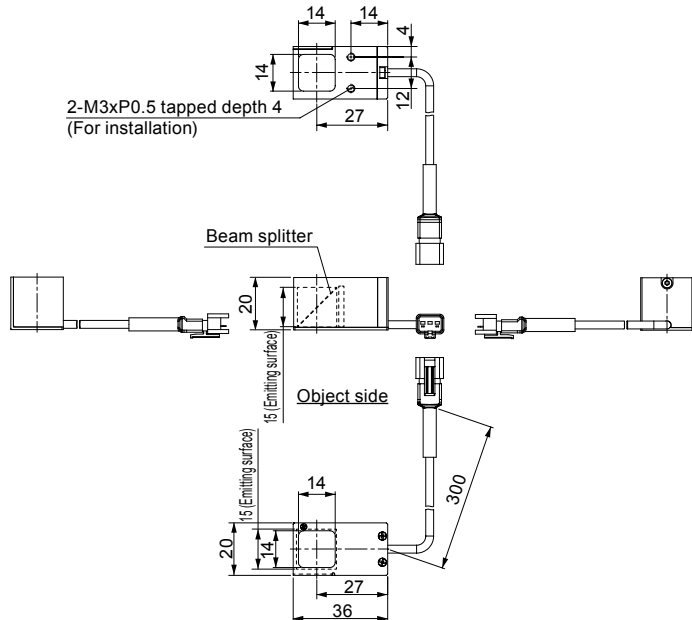
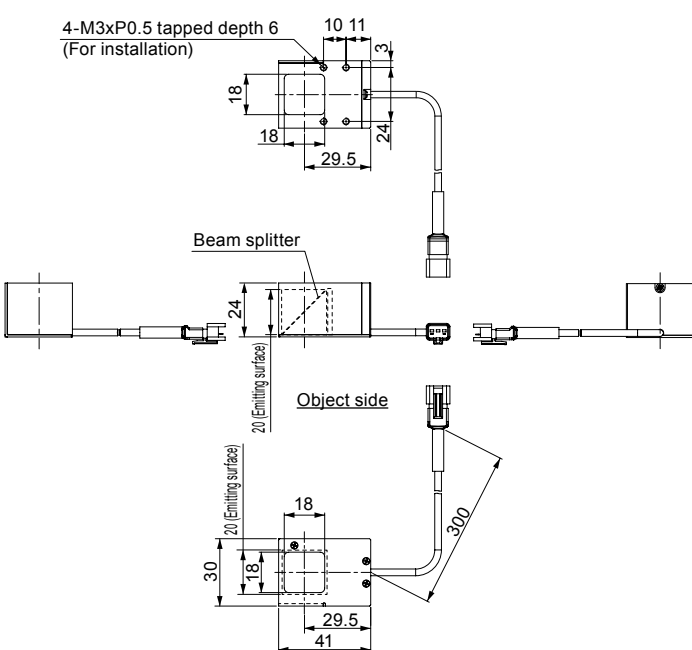
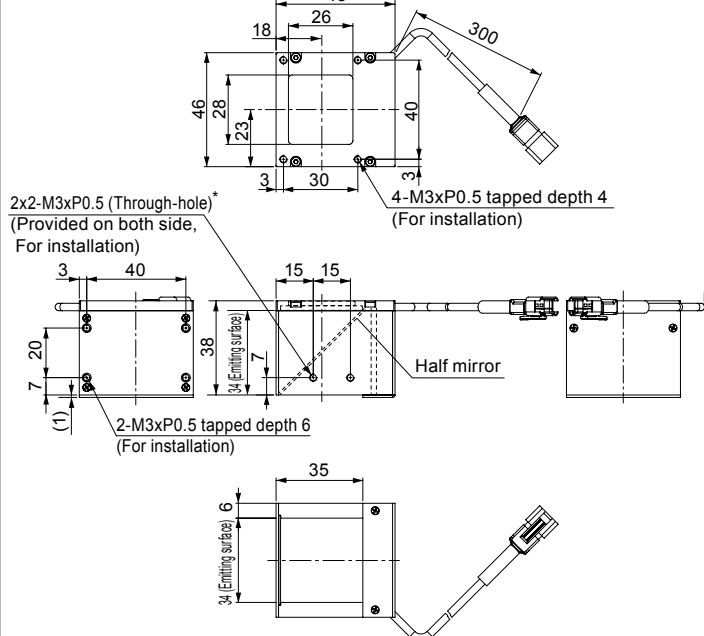
Main Specifications

■ Common Specifications

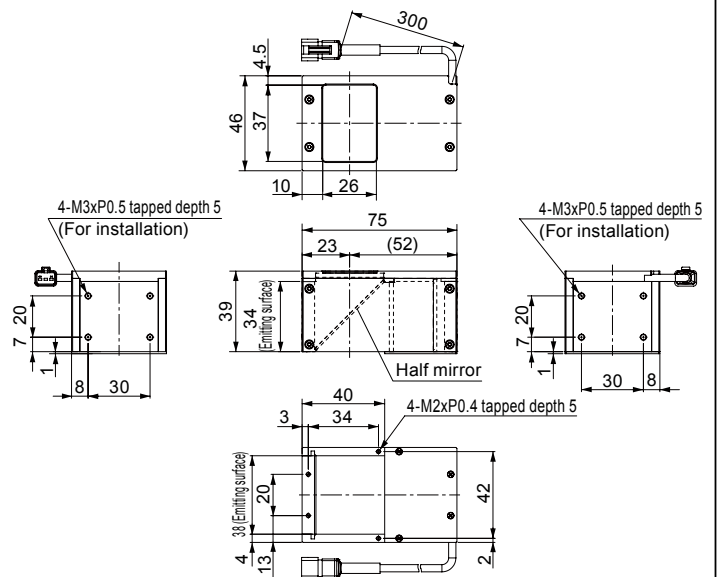
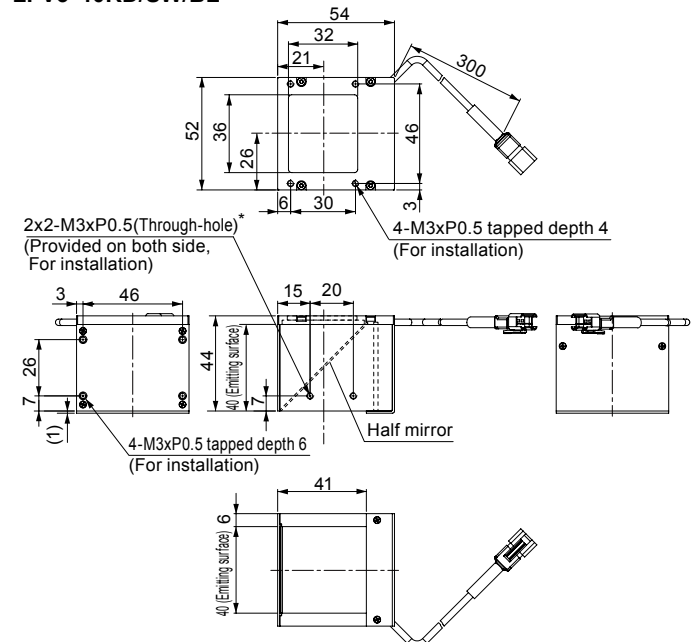
Input voltage	24V DC
Connector	SMR-03V-B
Polarity	1:(+), 2:NC, 3:(-)
Cable length	300mm
Cooling method	Natural air-cooling
Operating environment (indoors only)	Temperature: 0 to 40°C, Humidity: 20 to 85%RH (with no condensation)
Storage Environment	Temperature: -20 to 60°C, Humidity: 20 to 85%RH (with no condensation)
CE Marking	Safety standard: Conforms to EN62471
Environmental regulations	RoHS compliant
Case material	Aluminum alloy, Glass, Resin (for LFBV3-34, 40 only), Steel sheet (for LFBV3-CP-13, CP-18, 200 only)

■ Specifications by Model

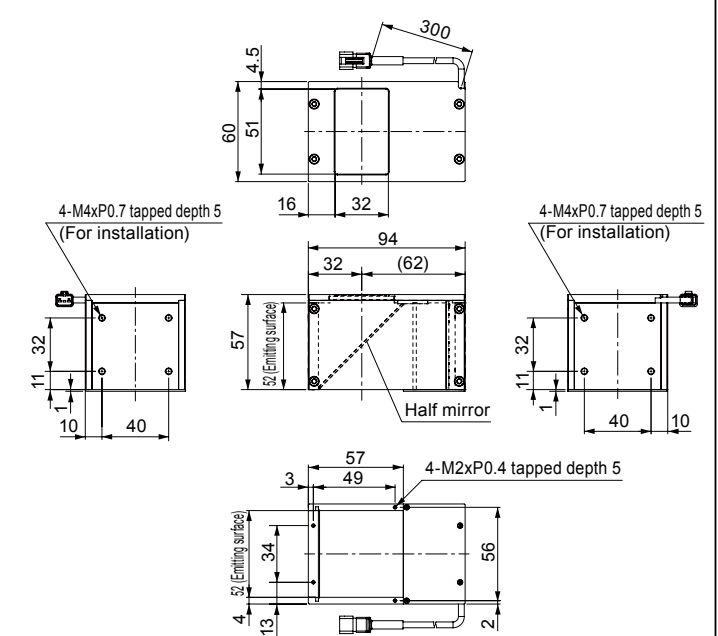
Model	LED color	Peak wavelength/ Correlated color temperature (typ.)	Power consumption (max.)	Weight (max.)
LFBV3-CP-13RD	Red	635nm	2.1W	37g
LFBV3-CP-13SW	White	6000K	2.3W	
LFBV3-CP-13BL	Blue	470nm	1.3W	
LFBV3-CP-18RD	Red	635nm	3.3W	70g
LFBV3-CP-18SW	White	6000K	4.1W	
LFBV3-CP-18BL	Blue	470nm	3.4W	
LFBV3-34RD	Red	635nm	3.7W	80g
LFBV3-34SW	White	6000K	3.2W	
LFBV3-34BL	Blue	470nm	3.2W	
LFBV3-35RD	Red	630nm	3.1W	175g
LFBV3-35SW	White	6500K	3.7W	
LFBV3-35BL	Blue	460nm	3.1W	
LFBV3-40RD	Red	635nm	4.6W	100g
LFBV3-40SW	White	6000K	4.6W	
LFBV3-40BL	Blue	470nm	4.6W	
LFBV3-50RD	Red	630nm	8.1W	335g
LFBV3-50SW	White	6500K	11W	
LFBV3-50BL	Blue	460nm	9.1W	
LFBV3-50x100RD	Red	630nm	17W	530g
LFBV3-50x100SW	White	6500K	20W	
LFBV3-50x100BL	Blue	460nm	17W	
LFBV3-70RD	Red	630nm	13W	620g
LFBV3-70SW	White	6500K	19W	
LFBV3-70BL	Blue	460nm	16W	
LFBV3-100RD	Red	630nm	22W	1060g
LFBV3-100SW	White	6500K	27W	
LFBV3-100BL	Blue	460nm	27W	
LFBV3-130RD	Red	630nm	31W	1750g
LFBV3-130SW	White	6500K	46W	
LFBV3-130BL	Blue	460nm	38W	
LFBV3-200RD	Red	630nm	43W	4350g
LFBV3-200SW	White	6500K	64W	
LFBV3-200BL	Blue	460nm	53W	

LFV3-CP-13RD/SW/BL

LFV3-CP-18RD/SW/BL

LFV3-34RD/SW/BL


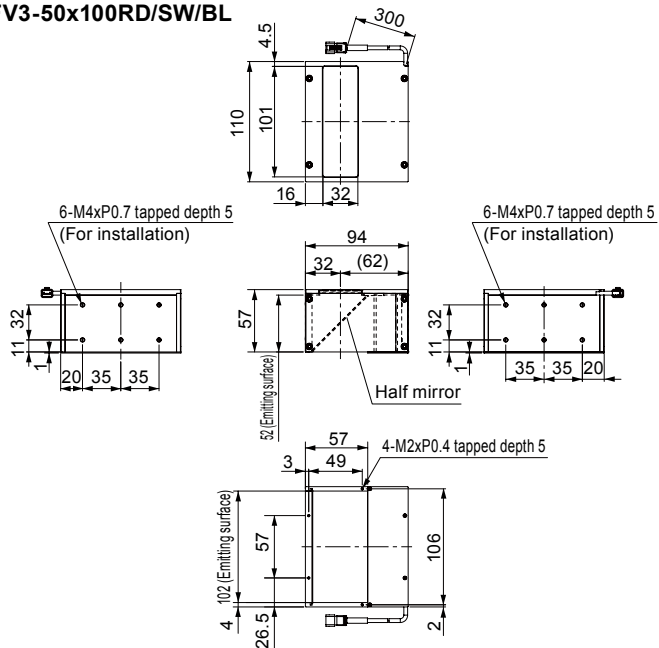
* Insert screws to a depth that does not affect the image.

LFV3-35RD/SW/BL

LFV3-40RD/SW/BL


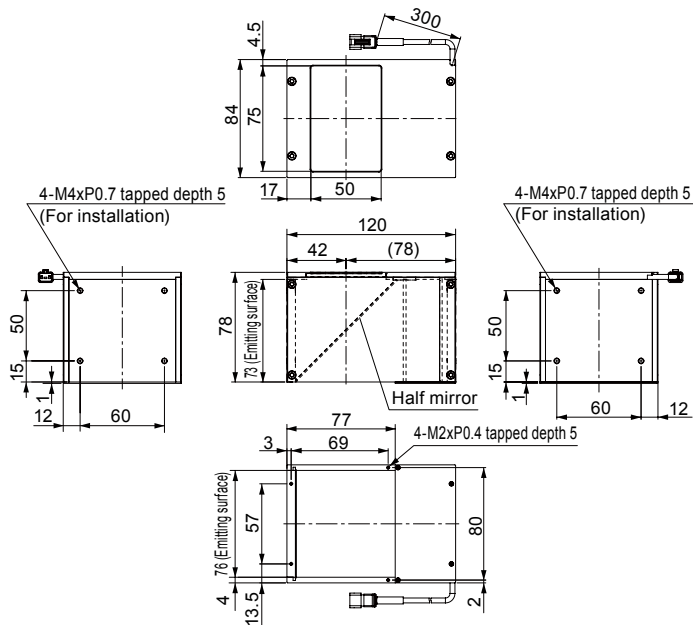
* Insert screws to a depth that does not affect the image.

LFV3-50RD/SW/BL


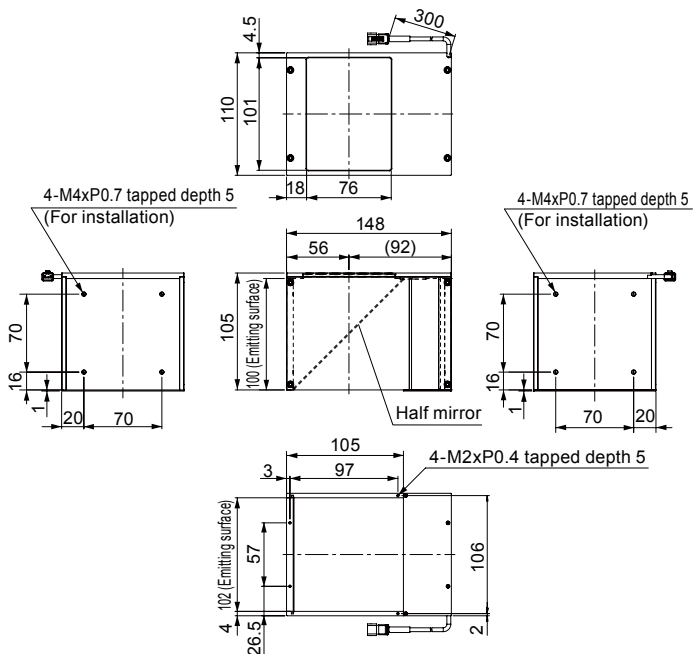
LFV3-50x100RD/SW/BL



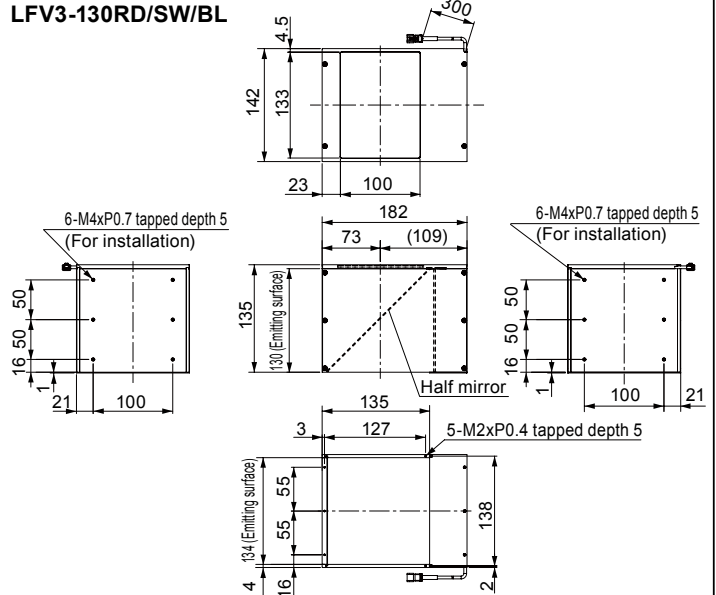
LFV3-70RD/SW/BL



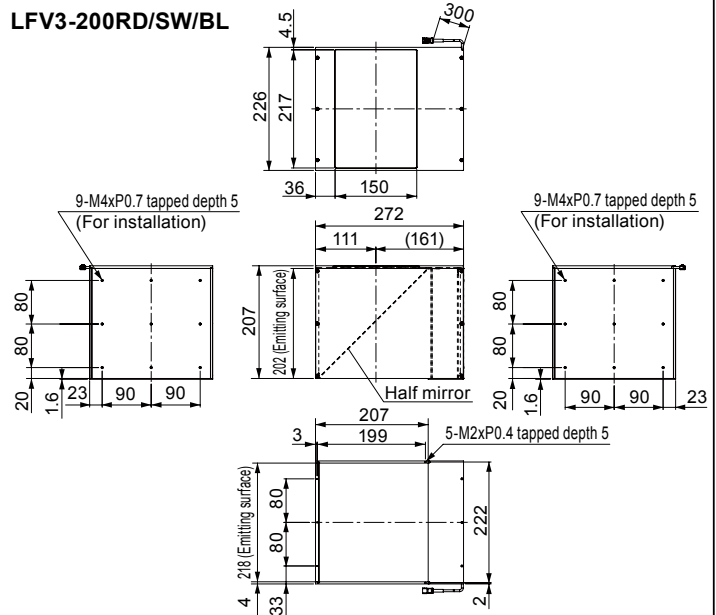
LFV3-100RD/SW/BL



LFV3-130RD/SW/BL



LFV3-200RD/SW/BL



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: 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

- 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.
- 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.
- CCS Inc. WILL CHARGE A REPAIR FEE UNDER THE FOLLOWING CONDITIONS:
 - IF THE PRODUCT HAS BEEN SUBJECTED TO MISUSE, UNAUTHORIZED REPAIRS, OR MODIFICATION FROM ITS ORIGINAL DESIGN.
 - IF THE PRODUCT HAS BEEN DAMAGED FROM IMPACTS DUE TO INAPPROPRIATE HANDLING.
 - 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.
 - IF THE DAMAGE RESULTS FROM CONNECTION TO ANY Control Unit OR TO ANY EQUIPMENT WHICH CCS Inc. DOES NOT MANUFACTURE OR DOES NOT SPECIFY FOR USE.
- 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.

- Contents of this Instruction Guide may be changed without prior notice.
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- CCS maintains the copyright on this Instruction Guide. Unauthorized transfer or reproduction is strictly prohibited.

Instruction Guide and Dimensional Diagrams in PDF or DXF can be downloaded from the CCS website. <http://www.ccs-grp.com/>

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

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<http://www.ccs-grp.com/mvad/>