



# 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.






## 1 Important Information for Equipment Safety - Read Before Use -









These products have been designed with full consideration of safety. However, incorrect usage of the products 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.

 <b>Warning</b>	Indicates that incorrect usage may result in serious injury or death.	 <b>Caution</b>	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.

 <b>PROHIBITED</b>  <b>DISASSEMBLY PROHIBITED</b>  <b>DO NOT TOUCH WITH WET HANDS</b>  <b>DO NOT SUBJECT TO MOISTURE</b>	 <b>MANDATORY ACTIONS</b> This symbol indicates required actions.
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 <b>Warning</b>	
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.	

 <b>Caution</b>	
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.

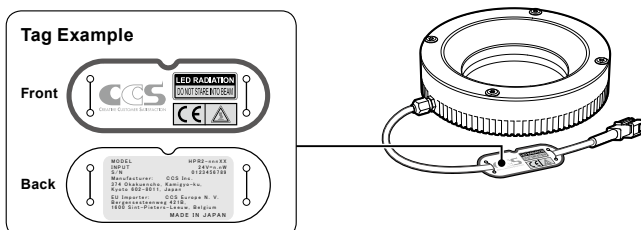
- Under conditions or in an environment not described in this instruction guide.
- In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
- In applications involving serious risk to life or property, 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.
- Well-ventilated places with minimal dust.
- Places that are not subject to sudden temperature changes.
- Places free from any water, oil, liquid, chemical, or steam.
- Places free from corrosive or combustible gas.
- Places away from water faucets, boilers, humidifiers, air conditioners, heaters, or stoves.

## 2 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.



## 3 Operating Instructions

 Make sure that the Control Unit for the LED Light is turned off.

1 Connect the light cable of the product to the Control Unit.

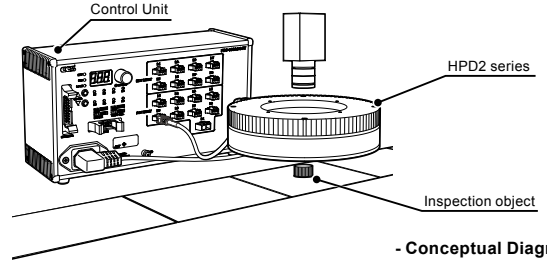
- Connect to the Control Unit equipped with SMP-03V-BC Connectors for power output. Insert the plug all the way into the connector.

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.



- Conceptual Diagram -

- When using color image processing equipment, readjust the white balance of the camera according to the operating conditions.
- Using RGB Light Units (HPR2-*nnn*FC or HPR2-400FC-FT) Changes in radiant quantities over time are different for different colors (red, green, and blue). If you use different colors at the same time, you will need to adjust them periodically.

## 4 Brackets (Sold Separately)

The following Brackets are available to mount the Light Units. Obtain the required Bracket.

1 Expansion Mounting Bracket

This Bracket is used to install an HPD2-series or HPR2-series Light Unit with mounting holes at intervals that are larger than the mounting holes on the Light Units, and it is used to install these Light Units to a vertical installation surface.

2 Light Joint Bracket

This Bracket is used to join an HPD2-series Dome Light Unit with an HPR2-series Light Unit. You can use it when illumination is required over an even wider range.

The Brackets that can be used depend on the size of the Light Unit. For details, refer to HPD2/HPR2/HPD-PF/HPR-PF-series Optional Bracket Operation Guide.

## 5 Main Specifications

Common Specifications

Input voltage	24 VDC
Connector	SMR-03V-B*
Polarity	1:(+), 2:NC, 3:(-)
Cable length	300 mm
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
Case material	Aluminum alloy, Resin

\* RGB Light Units (HPR2-*nnn*FC or HPR2-400FC-FT) have three connectors.

Specifications by Model (LED Color)

End of model name	LED color	Peak wavelength / correlated color temperature (typ.)	End of model name	LED color	Peak wavelength (typ.)
RD or RD-FT	Red	635 nm	FC or FC-FT	Red	622 nm
SW or SW-FT	White	6000 K		Green	525 nm
BL or BL-FT	Blue	470 nm		Blue	470 nm

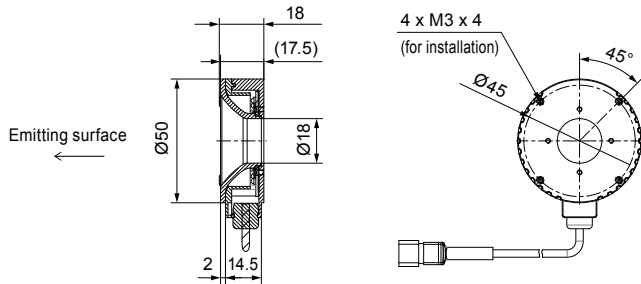
Specifications by Model

Model name	Power consumption (max.)	Weight (max.)	Model name	Power consumption (max.)	Weight (max.)
HPR2-50RD	7.6 W	46 g	HPR2-200RD	34 W	380 g
HPR2-50SW	9.1 W		HPR2-200SW	41 W	
HPR2-50BL	3.8 W		HPR2-200BL	19 W	
HPR2-75RD	17 W	160 g	HPR2-250RD	45 W	510 g
HPR2-75SW	16 W		HPR2-250SW	46 W	
HPR2-75BL	6.0 W		HPR2-250BL	24 W	
HPR2-100RD	17 W	170 g	HPR2-400RD-FT	45 W	1050 g
HPR2-100SW	23 W		HPR2-400SW-FT	46 W	
HPR2-100BL	11 W		HPR2-400BL-FT	30 W	
HPR2-150RD	27 W	250 g			
HPR2-150SW					
HPR2-150BL					
HPR2-150FC	15 W				

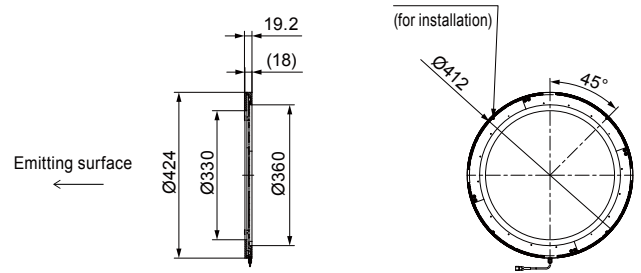
## 6 Dimensions (mm)

The dimensions of the side and back of the product are provided below.

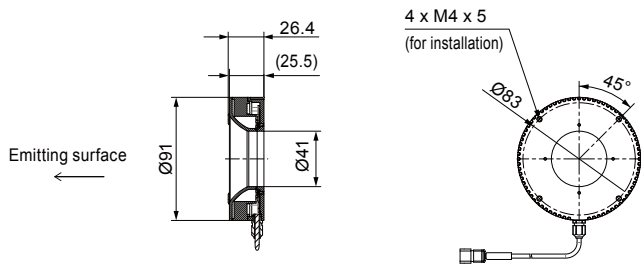
### HPR2-50RD/SW/BL/FC



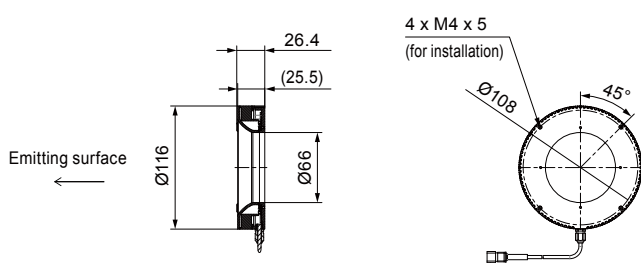
### HPR2-400RD-FT /SW-FT /BL-FT /FC-FT 4 x M6 x 6



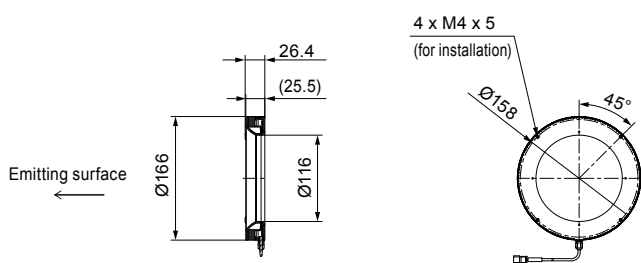
### HPR2-75RD/SW/BL/FC



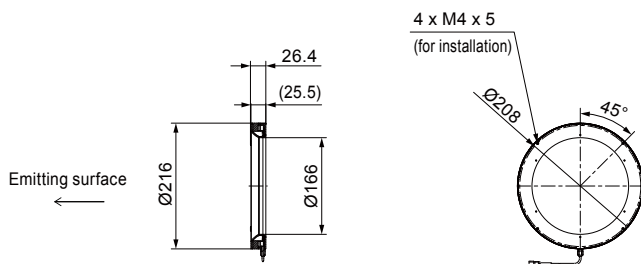
### HPR2-100RD/SW/BL/FC



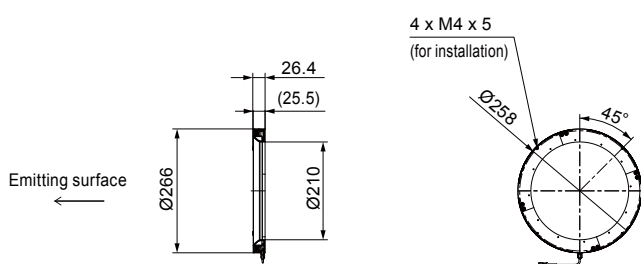
### HPR2-150RD/SW/BL/FC



### HPR2-200RD/SW/BL/FC



### HPR2-250RD/SW/BL/FC



\* RGB Light Units (HPR2-nnnFC or HPR2-400FC-FT) have three connectors.



\* Tighten the product mounting screws to 1 N·m or less. The product may be damaged if the screws are overtightened.

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