

High-Power Light

HPR Series

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

Introduction

This product is an LED light used for machine vision and industrial inspection. Do not use the product for other applications, and be sure to follow the instructions below.

- 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.
- Use the product under the following conditions.
- Using the product under any other conditions may damage the product.
- 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)

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

 **Caution**

Due to the structure of this product, current leakage may occur if it is exposed to AC amplitude noise. If the product is installed in a place close to a source of AC amplitude noise, be sure to insulate the product from the noise source. Failure to do so may cause the LED light to malfunction due to the effect of the current leakage.

2






Important Information for Equipment Safety - Read Before Use -









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.

 <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>INSTRUCTED</b>
These symbols mean the prohibited action.				These symbols mean the necessary action must obey.

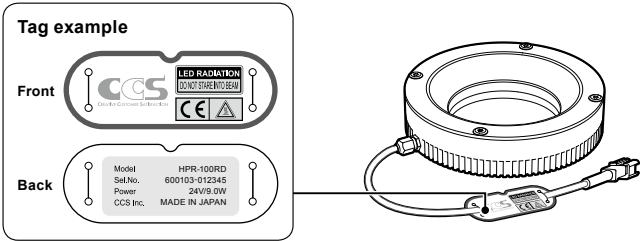
 <b>Warning</b>	
Do not disassemble or modify the product. Doing so may result in fire or electric shock.	 LED light radiation may cause corneal or retinal abnormalities if you look directly at the light. To prevent harmful light exposure, never look directly at the LED light.  <b>INSTRUCTED</b>
Do not 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.  <b>INSTRUCTED</b>
Make sure that the product is free of moisture or any liquid. Exposure to water may result in fire, electric shock, or product failure.	 If abnormal condition occurs such as fuming, heat, smell, noise, or so on, stop using the product immediately, and turn the power off. A fire or electric shock may result if the product is kept used.  <b>INSTRUCTED</b>
Connect or disconnect the light cable only after turning off the power supply for the LED light. Failure to do so may result in circuit damage, fire caused by a minute spark, or electric shock.	 <b>INSTRUCTED</b>

 <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 power supply.	 Due to the structure of the product, leak current may be produced as the result of AC amplitude noise. This may cause the LEDs to light incorrectly. Separate the product from sources of noise.  <b>INSTRUCTED</b>
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.	 Make sure that the length of the extension cable is less than 5m. If the extension cable is longer than 5m, the voltage applied to both ends of the LED light will drop due to the DC resistance of the cable. The rated voltage will not be attained for 100% radiant ability, and the radiant quantity will drop as a result.  <b>INSTRUCTED</b>
Do not drop the product or subject it to impact. Doing so may cause the product to malfunction.	  <b>INSTRUCTED</b>

3

Confirming Product Information

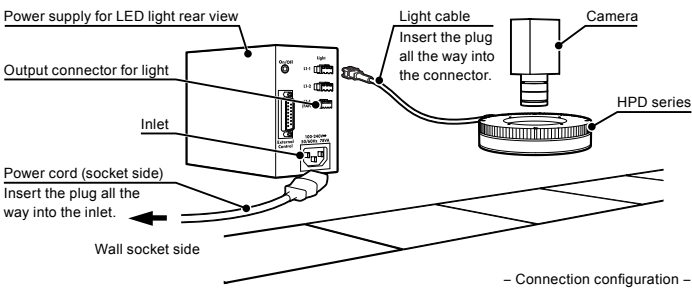
The following tag is attached to the cable on the LED Light. The color of the label indicates the luminescence color of the Light. The back of the tag there is a name label that gives the model number, power consumption, and serial number. Be sure to check the contents before using the product and handle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




4

Wire Connection

- Make sure that the power supply for the LED light is turned off.  
\*Read the Instruction Guide of the power supply for the LED light before use.
- Refer to the illustration below and connect the light cable to the power supply output connector.
- Connect power cord to inlet and wall socket.



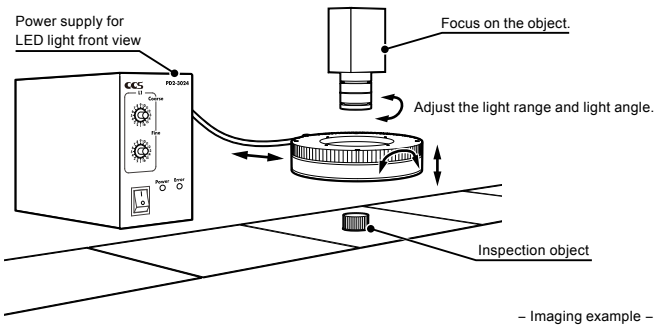
 **Caution**

Screw tightened by less than 1N・m when mounting the product.

5

Operating Instructions

- Turn on the power supply for the LED light.
  - Focus the imaging device, such as a camera, onto the inspection object.
  - Adjust light range, light angle, and radiant quantity to optimize images.
- \*When using white LED lights with color image processing equipment, readjust the white balance for the camera approximately 60 minutes after turning on the power.



Use the power supply for the LED light to adjust the radiant quantity.  
\*Read the Instruction Guide of the power supply for the LED light before use.

Efficient Use of LED Lights

LED lights generate heat that decreases radiant quantity and speeds degeneration. Follow the instructions below in order to suppress the heat of LED lights and prevent decreases radiant quantity and speeds degeneration.

- Use the light with the light level turned as low as possible.
- Only turn light on during imaging.
- Installing a fan or providing air flow for heat dissipation.

## 6 Power Supply

When connecting a power supply to this product, use following CCS Power Supply Units for the LED light. Select a power supply to match the application and purpose. When making the selection, confirm that the total power consumption of the connected lights will be within the power supply output power specifications. In addition, independent control is enabled by selecting a power supply with the number of channels corresponding to the number of input connectors for the lights that are used. Read the Instruction Guide of the power supply for the LED light before use.

### ■ Digital Power Supply (Pulse duty control)

The digital power supply is able to control radiant quantity with a PWM light control system. The setting can be made manually or controlled externally from a PLC or image processing device. The external power control of the LED light requires a CCS external control cable (sold separately).

### ■ Analog Power Supply (Constant voltage control)

The analog power supply providing stepless intensity control through variable voltage control. It is ideal for continuous use with cameras having a shutter speed of 1/4000 or faster.

Note: This product does not support overdrive power supplies.

Please contact CCS Inc. about a new product and other power supply.

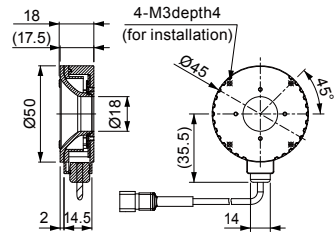
## 7 Main Specifications

Model	LED color	Peak wavelength (typ.)	Input voltage (max.)	Power consumption (max.)	Weight (max.)	Input connector/ Polarity and signal	Case material
HPR-50RD	Red	635nm	24V DC (+0V)	5.1W	46g	SMR-03V-B 1: Anode (+) brown, 2: NC, 3: Cathode (-) blue	Aluminum alloy, PMMA, ABS
HPR-50SW	White	—		6.1W			
HPR-50BL	Blue	470nm		9.0W			
HPR-100RD	Red	625nm		170g			
HPR-100SW	White	—			14W		
HPR-100BL	Blue	470nm			16W		
HPR-150RD	Red	625nm		250g			
HPR-150SW	White	—			20W		
HPR-150BL	Blue	470nm			25W		
HPR-250RD	Red	625nm		510g			
HPR-250SW	White	—			37W		
HPR-250BL	Blue	470nm			25W		
HPR-400RD	Red	625nm		1050g			
HPR-400SW	White	—			41W		
HPR-400BL	Blue	470nm					

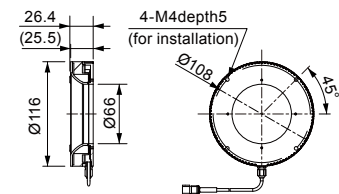
-5-

## 8 Dimensional Diagrams (mm)

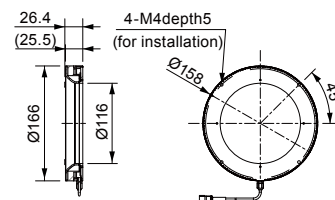
HPR-50RD/SW/BL



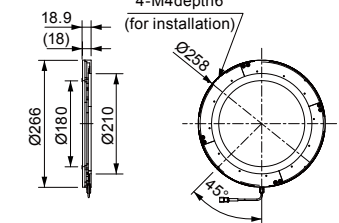
HPR-100RD/SW/BL



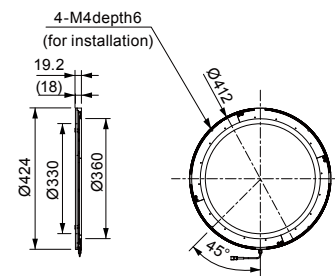
HPR-150RD/SW/BL



HPR-250RD/SW/BL



HPR-400RD/SW/BL



-6-

## 9 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
<b>10</b>	LED Lights	×	○	×	○	○	○
<p>○: 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.</p> <p>×: 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.</p> <p>*Lead and cadmium are excluded in EU RoHS.</p>							
<p>Usage deadline for environmental protection</p> <p>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.</p>							

产品中有害有害物质或元素的名称及含量							
环保使用期限	产品	有害有害物质或元素					
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
<b>10</b>	LED 照明	×	○	×	○	○	○
<p>○: 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。</p> <p>×: 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。</p> <p>(注) 铅和镉中的 "×", 因欧洲 RoHS 没限定, 故用 "○" 表示。</p>							
<p>环保使用期限</p> <p>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。</p>							

-7-

## ● 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

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.

- Contents of this Instruction Guide may be changed without prior notice.
- Illustrations used in this Instruction Guide may differ from actual products.
- CCS maintains the copyright on this Instruction Guide. Unauthorized transfer or reproduction is strictly prohibited.

- 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/>

-8-