

Line Light

LN-60/200SW2-HK-STK

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, 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 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.

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 -

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.

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

<div>PROHIBITED</div>	<div>DISASSEMBLY PROHIBITED</div>	<div>DO NOT TOUCH WITH WET HANDS</div>	<div>DO NOT SUBJECT TO MOISTURE</div>	<div>MANDATORY ACTIONS</div>
These symbols indicate prohibited actions.				This symbol indicates required actions.

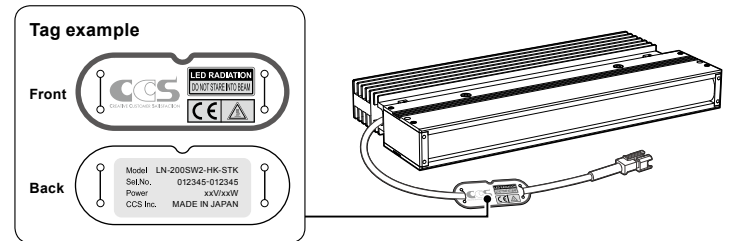
<div>Warning</div>	<div>Warning</div>
Do not disassemble or modify the product. Doing so may result in fire or electric shock.	LED light radiation may cause corneal or retinal abnormalities if you look directly at the light. To prevent harmful light exposure, never look directly at the LED light.
Do 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 or electric shock.	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.
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.	

<div>Caution</div>	<div>Caution</div>
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.	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.
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.	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.
Do not drop the product or subject it to impact. Doing so may cause the product to malfunction.	

3

Confirming Product Information

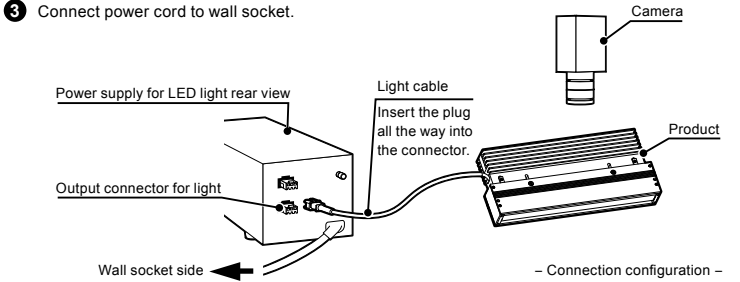
The following tag is attached to the cable on the LED Light. The color of the label indicates the luminescence color of the Light. The back of the tag there is a name label that gives the model number, power consumption, and serial number. Be sure to check the contents before using the product and handle 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 wall socket.

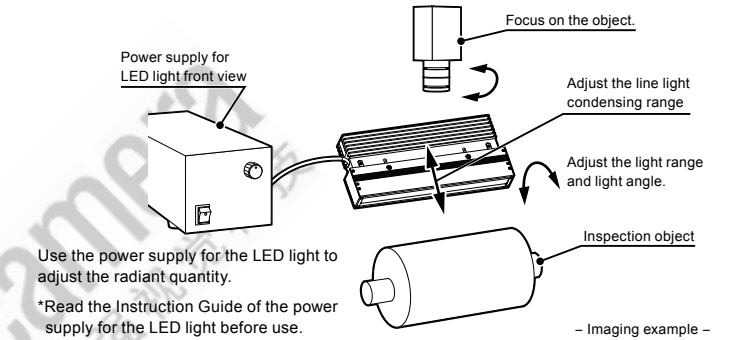


5

Operating Instructions

Preparation to Capture Images

- 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.



Adjusting the Line Light Condensing Range

The line light condensing range can be adjusted by changing the distance between the cylindrical lens and the light source inside the body. The distance between the lens and the light source may be changed by sliding the body.

- Use the accessory hexagon wrench to loosen the screws.
The adjustable range is 15mm.
- Slide the body to adjust the distance between the lens and the light source.
- When the correct line light condensing range is achieved, tighten the screws to fix the body in position.
* Tightening torque: 0.4 to 0.6N.m

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

Select the power supply from following power supplies or an equivalent matched to the usage. Read the Instruction Guide of the power supply for the LED light before use.

PSB Series Analog Power Supply (Constant voltage control)

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

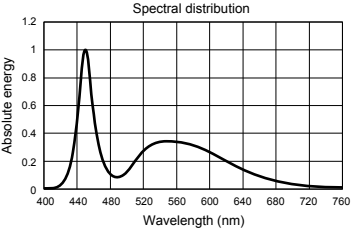
Power supply	Rated output voltage	Output electric power
PSB-3024VB	24V	30W

- A Note about Using a Digital Power Supply -

Because digital power supplies use pulse-width modulation (PWM), the line camera scan rate and the operation of the PWM cycle may cause the image to flicker. Check the line camera scan rate and PWM cycle before selecting the power supply. A digital power supply can be specially ordered that has a short PWM cycle to reduce flicker. Please contact CCS Inc. for further information.

Power supply	Rated output voltage	Output electric power	PWM
PD2-3024-500	24V	28W	Approximately 500kHz

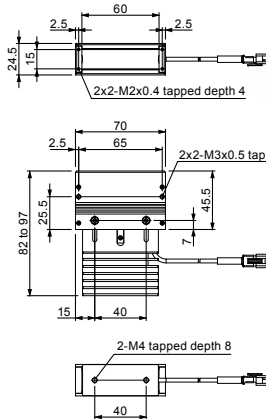
7 Main Specifications

Model	LN-60SW2-HK-STK	LN-200SW2-HK-STK
Input voltage	24V DC (21.6 to 24V)	
Power consumption	6.1W max.	22W max.
LED color	White	
Wavelength characteristics (reference)		
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)	
Cable	2-conductor cable 300mm (+35mm, -0mm)	
Connector	SMR-03V-B (mfd. by JST)	
Polarity, signal	1: Anode (+) brown, 2: NC, 3: Cathode (-) blue	
Case	Aluminum alloy Black, acrylic transparency	
Weight	250g max.	750g max.

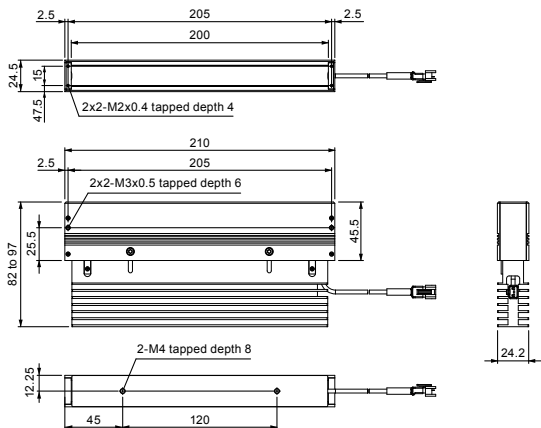
-5-

8 Dimensional Diagrams (mm)

LN-60SW2-HK-STK



LN-200SW2-HK-STK



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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 Restricting Hazardous Substances Used in Electric and Electronic Products", which was implemented on July 1, 2016 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.

Names and contents of hazardous substances							
Usage Deadline for Environmental Protection	Product name	Names and contents of hazardous substances					
		Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	PBB	PBDE
	LED Lights	×	○	×	○	○	○
(This table is made in compliance with SJ/T11364 regulations.) ○ Indicates that this toxic or hazardous substances contained in all the homogeneous materials for this part, according to GB/T26572 is within the limit requirement. × Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to GB/T26572, 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 Restricting Hazardous Substances Used in Electric and Electronic 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.							

产品中有害物质的名称及含量							
环保 使用期限	产品	有害物质的名称及含量					
		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	×	○	×	○	○	○
<p>(本表格依据 SJ/T11364 的规定编制。)</p> <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 GB/T26572 标准规定的限量要求以下。</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> <p>×</p> 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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 POWER SUPPLY 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 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.

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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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