Line Lights

LNSD(A) Series Instruction Guide

LED Light for Machine Vision and Industrial Inspection

CE

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 -

This product has been designed with full consideration of safety. However, 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.

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	MANDATORY ACTIONS
These symbols indicate prohibited actions.	This symbol indicates required actions.

⚠ Warning	
Do not disassemble or modify the product. Doing so may result in fire or electric shock. (DISASSEMBLY PROHIBITED)	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. (MANDATORY ACTIONS)
Do not touch the Light Unit and cables with wet hands. Doing so may result in electric shock. (DO NOT TOUCH WITH WET HANDS)	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. (MANDATORY ACTIONS)
Make sure that the product is free of moisture or any liquid. Exposure to water may result in fire or electric shock. (DO NOT SUBJECT TO MOISTURE)	Connect or disconnect the cable only after turning off the Control Unit for the LED light. Failure to do so may result in circuit damage, fire caused by a minute spark, or electric shock. (MANDATORY ACTIONS)
If abnormal condition occurs such as fuming, heat, smell, noise, or so on, stop using the product immediately, turn the power off, and unplug the power cord. A fire or electric shock may result if the product is kept used. (MANDATORY ACTIONS)	

⚠ 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 Unit and the Control Unit. (MANDATORY ACTIONS)	Use a Control Unit that is suitable for the product ratings. Using an incorrect Control Unit can cause product failure. (MANDATORY ACTIONS)
Do not drop the product or subject it to impact. Doing so may cause the product to malfunction. (PROHIBITED)	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. (MANDATORY ACTIONS)
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. (PROHIBITED)	

Do not use the Light Unit in the following situations.

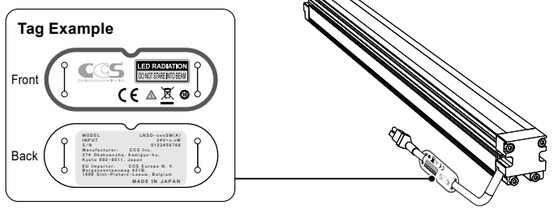
- Under conditions or in an environment not described in this instruction guide.
- In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
- In applications involving serious risk to life or property,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

Please install the Light Unit to locations with following conditions.
Incorrect installation location may cause Light Unit 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 Installation

Required Parts

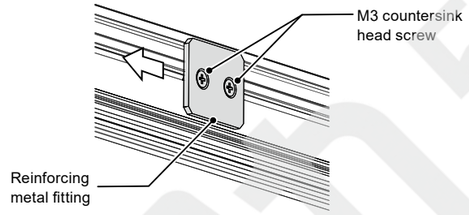
M3 nuts, M4 nuts

M3 screws, M4 screws

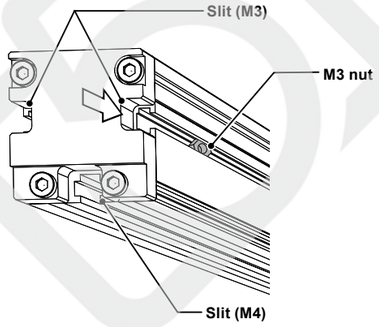
- Mount the Light Unit on a bracket or surface that readily dissipates heat.
- There are no restrictions on the installation angle of the Light Unit.
- Determine the screw interval according to the application environment and use a suitable number of screws for mounting.

Note on installation of the Light Unit onto the wall
(Only when the emitting-surface length is more than 1,600 mm)

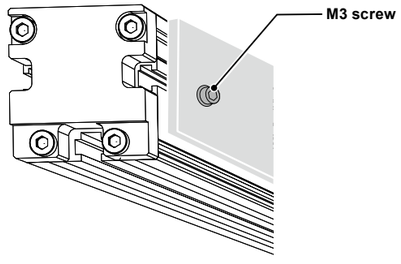
A reinforcing metal fitting is attached at the center of each side of the Light Unit. When you install the Light Unit with its side attached onto the wall and others, refer to the figure below and remove the reinforcing metal fitting.



❶ Insert the nut into the slit in the frame.



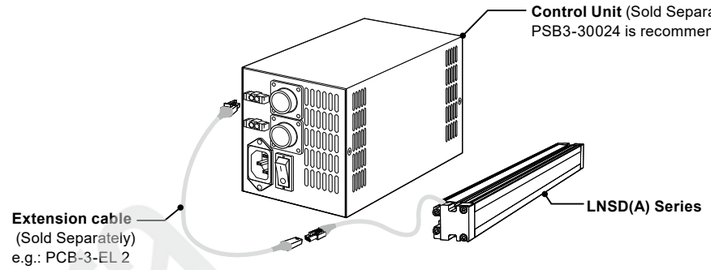
❷ Fix the Light Unit with screw.



4 Operating Instructions

❶ Connect the Light Unit and the Control Unit with one of the extension cables.

⚠ **Warning** Make sure that the Control Unit is turned OFF.

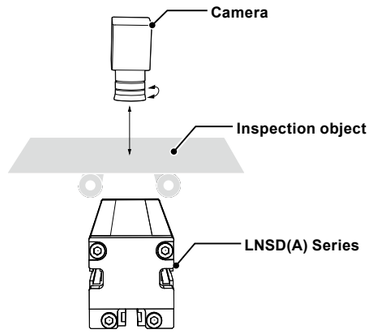


- Optional Extension Cables (FCB-EL2 series) are available.
- There are two input connectors for the Light Unit whose length of the emitting surface is more than 1,200 mm. To install the Light Unit, use two Extension cables of the same length. Using the cables of different length may cause uneven emission due to a difference in voltage drop by DC resistance of the cables.

⚠ **Warning** Install the Extension cable so as not to contact it with the case of the Light Unit. Otherwise, abnormal heating of the cable or fire may occur.

❷ Turn ON the Control Unit and the Light Unit.

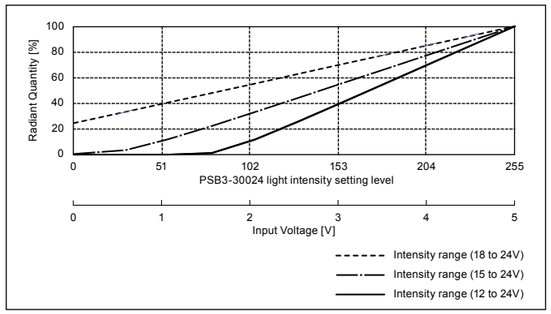
❸ Focus the imaging device, such as a camera, onto the inspection object.



❹ Adjust light range, light angle, and radiant quantity to optimize images. Adjust the radiant quantity at the Control Unit.

- When using white LED lights with color image processing equipment, readjust the white balance of the camera according to the operating conditions.
- Light uniformity changes by radiant quantity. Therefore, it is recommended that this product be used with more than 30% of radiant quantity. Read the instruction guide of the Control Unit before use.

Light Intensity Setting and Light Output Characteristic (Reference Data)



Note: The above data represents actual results for the LNSD-400SW-HU(A) Light Unit. (This data is for reference only.)
The graph for the LNSD-400SW(A) Light Unit is the same.

5 Maintenance

Dust or dirt on the emitting surface may affect the captured image. As the emitting surface is made of easily damaged material, clean the Light Unit as follows:

- Remove dust and dirt by blowing it off with air. Do not touch the emitting surface with your hand.
- Do not use a dry cloth. Wipe off any heavy dirt with a soft wet cloth lightly after a trial. Use of thinner and other solvent, detergent, or disinfectant may damage the Light Unit.

Also, handle the Light Unit with care during daily use. Make sure no dust or dirt adhere to the emitting surface.

6 Main Specifications

Common Specifications

Input voltage	24 VDC
Correlated color temperature (typ.)	White: 6000 K
Connector	ELP-02V
Polarity, signal	1: (+), 2: (–)
Cable length	300 mm
Cooling method	Natural air-cooling
Operating environment (indoors only)	Temperature: 0 to 50°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 EN 62471-1
Case material	Aluminum alloy, resin
Accessories	Instruction guide

Specifications by Model

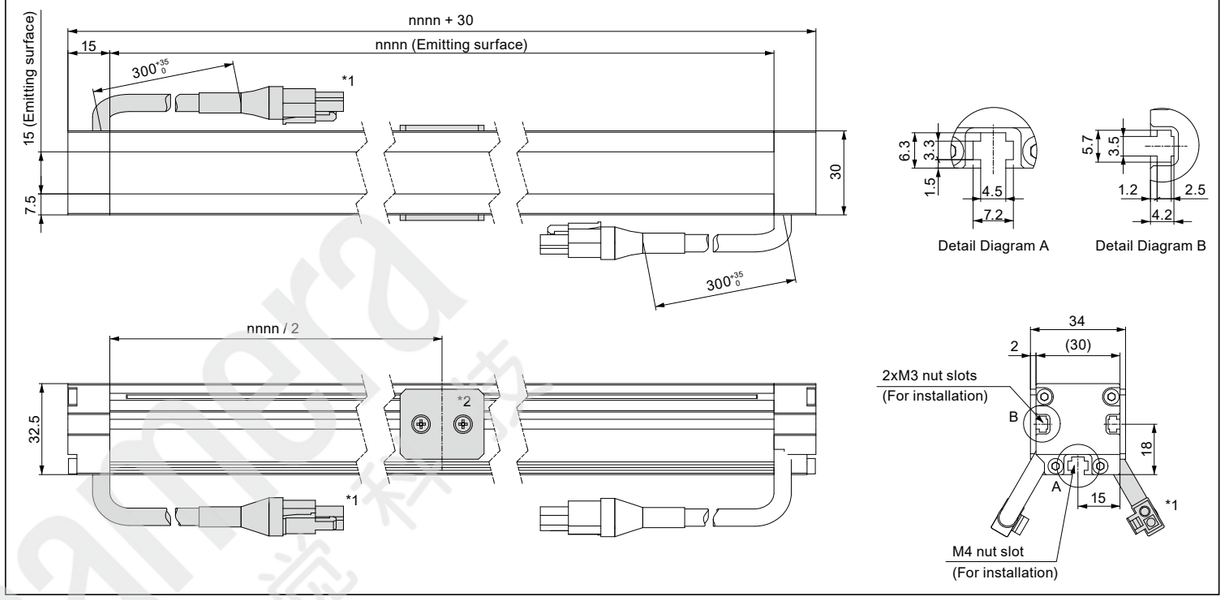
Model name*	LED color	Power consumption (max.)	Number of connectors	Weight (max.)	Model name*	LED color	Power consumption (max.)	Number of connectors	Weight (max.)
LNSD-100SW(A)	White	11 W	1	200 g	LNSD-1300SW(A)	White	131 W	2	1770 g
LNSD-200SW(A)	White	21 W	1	320 g	LNSD-1400SW(A)	White	141 W	2	1910 g
LNSD-300SW(A)	White	31 W	1	460 g	LNSD-1500SW(A)	White	151 W	2	2040 g
LNSD-400SW(A)	White	41 W	1	590 g	LNSD-1600SW(A)	White	161 W	2	2170 g
LNSD-500SW(A)	White	51 W	1	720 g	LNSD-1700SW(A)	White	171 W	2	2300 g
LNSD-600SW(A)	White	61 W	1	860 g	LNSD-1800SW(A)	White	181 W	2	2440 g
LNSD-700SW(A)	White	71 W	1	990 g	LNSD-1900SW(A)	White	192 W	2	2570 g
LNSD-800SW(A)	White	81 W	1	1120 g	LNSD-2000SW(A)	White	202 W	2	2700 g
LNSD-900SW(A)	White	91 W	1	1240 g	LNSD-2100SW(A)	White	212 W	2	2830 g
LNSD-1000SW(A)	White	101 W	1	1370 g	LNSD-2200SW(A)	White	222 W	2	2960 g
LNSD-1100SW(A)	White	111 W	1	1500 g	LNSD-2300SW(A)	White	232 W	2	3090 g
LNSD-1200SW(A)	White	121 W	1	1640 g	LNSD-2400SW(A)	White	242 W	2	3220 g
LNSD-2500SW(A)	White	230 W	2	3350 g	LNSD-2800SW(A)	White	257 W	2	3740 g
LNSD-2600SW(A)	White	239 W	2	3480 g	LNSD-2900SW(A)	White	267 W	2	3870 g
LNSD-2700SW(A)	White	248 W	2	3610 g	LNSD-3000SW(A)	White	276 W	2	4000 g

* These are the names of high luminance types. In the case of high uniformity type, add "-HU" before “(A)“. E.g.: LNSD-400SW-HU(A)
In most cases unless otherwise specified, the descriptions on this instruction guide are commonly applicable for both types.

7 Dimensions (mm)

LNSD-nnnnSW(A)

(nnnn = 100 to 3000)



*1 There are two connectors only for the Light Unit whose length of the emitting surface is more than 1,200 mm.
*2 There are reinforcing metal fittings only for the Light Unit whose length of the emitting surface is more than 1,600 mm.

CCS Inc. http://www.ccs-grp.com/

Descriptions in this instruction guide are based on information available as of September 2022. KZ13674-T001-000