

HLV3-C 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 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.

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

Warning	
Do not disassemble or modify the Spot Light. 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 Spot Light with wet hands. Doing so may result in electric shock.	This product generates high temperatures. Do not touch the Spot Light 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 Spot Light is to be used in a closed space.
Make sure that the Spot Light is free of moisture or any liquid. Exposure to water may result in fire or electric shock.	Connect or disconnect the light cable only after turning off the Control Unit for LED Light Units. 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 Spot Light immediately, turn OFF the Dedicated Control Unit and unplug the power cord. A fire or electric shock may result if the Spot Light is kept used.	

Caution	
Do not use user-made cables. Doing so may cause Spot Light failure. Use the CCS extension cable if it is necessary to extend the distance between the light and the Control Unit.	Use a standard Extension Cable that is manufactured by CCS. However, if the cable is too long, the light intensity will decrease due to voltage drop caused by the DC resistance of the cable.
Do not use the branch cables. Doing so may cause Spot Light failure.	Always connect the Spot Lights to the Dedicated Control Units specified by CCS. Not doing so may cause Spot Light failure.
Be careful of static electricity. Damage to the Spot Light may occur, if a person charged with static electricity touches it. Keep the Spot Light away from all items charged with static electricity.	Do not drop the Spot Light or subject it to impact. Doing so may cause the Spot Light to malfunction.

Do not use the Light Unit in the following situations.

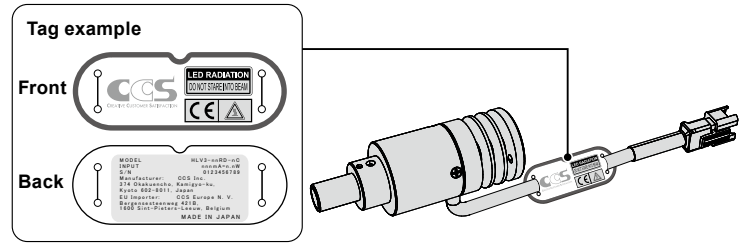
- Under conditions or in an environment not described in this instruction guide.
- In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
- In applications involving serious risk to life or property,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

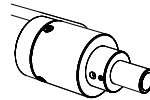
The following tag is attached to the cable on the LED Light. The color of the label indicates the luminescence color of the Light. The back of the tag there is a name label that gives the model number, power consumption, and serial number. Be sure to check the contents before using the product and handle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



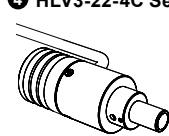
3 Major Combinations

The HLV3-C-series Spot Lights are used in combination with a coaxial lens or other equipment. Refer to the following figures, mount the Spot Light on a coaxial lens, and fix it with an appropriate torque. The numbers (1 to 4) in the figures below correspond to those in 7. Main Specifications and 8. Dimensions.

1 HLV3-22-1C Series

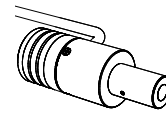


2 HLV3-22-2C Series

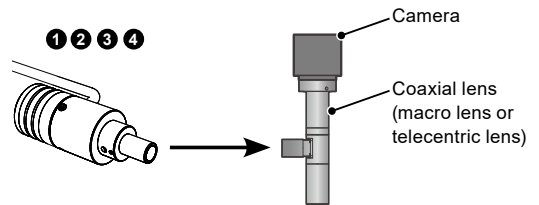


4 HLV3-22-4C Series

3 HLV3-22-2C-1220 Series

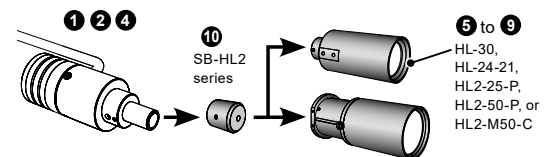


Mounting on a Coaxial Lens



The Spot Light can be mounted on a coaxial lens. The inner diameter of the lens for mounting the Spot Light 1, 2, or 4 must be 8 mm, and that for the Spot Light 3 must be 12 mm.

Mounting on a Condenser Lens (Optional Product, Sold Separately)

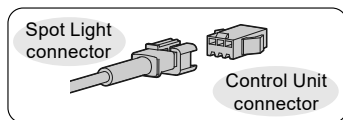


The Spot Light can be mounted on a Condenser Lens (5 to 9). Use a Light Aperture Adapter (10) as needed. For detailed dimensions of the Condenser Lenses and Light Aperture Adapters, refer to 9. Optional Accessories (Sold Separately).

4 Operating Instructions

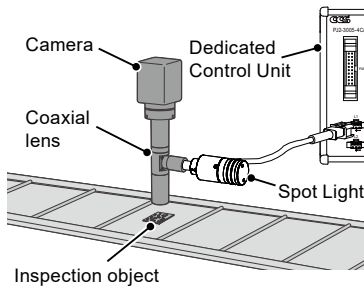
MANDATORY ACTIONS Make sure that the Dedicated Control Unit is turned OFF before you connect the Spot Light.

1) Connect the light cable of the Spot Light to the Dedicated Control Unit output connector.



2) Turn ON the Dedicated Control Unit, and then turn ON the Spot Light.

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



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

Read the instruction guide for the Dedicated Control Unit before use.

5 Dedicated Control Units

The HLV3-C-series Spot Lights are available with the following Dedicated Control Units:

- PJ2-series Control Units
- PJ-series Control Units
- PD3-series Control Units (models with HLV LIGHT output connectors)
- CC-PJ-0707 Controller

Note that the Spot Lights with an input current of 1,000 mA (④) are available only with the PJ2-series Control Units.

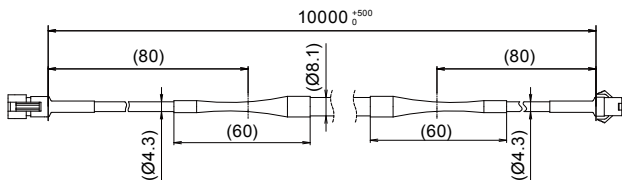
For detailed information, refer to the instruction guide for the Dedicated Control Unit.

6 Extension Cables

The FCB- and FRCB-series standard Extension Cables are available to connect the HLV3-C-series Spot Light and the Dedicated Control Unit.

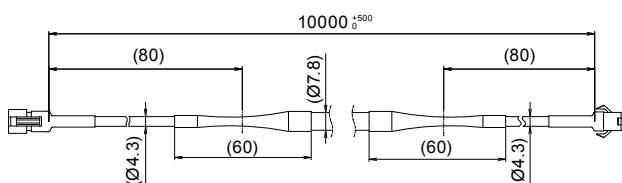
When the PJ2-series Control Unit is used, the Extension Cables shown below are applicable to the Spot Lights.

FCB-HLV3-10 (Unit: mm)



Weight: 1.20 kg max., Cable permitted bending radius: 65 mm

FRCB-HLV3-10 (Robot Cable)



Weight: 1.20 kg max., Cable permitted bending radius: 35 mm

7 Main Specifications

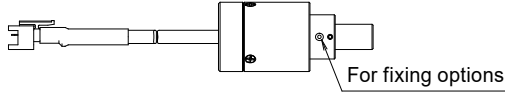
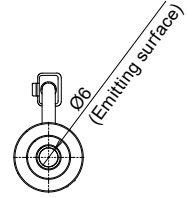
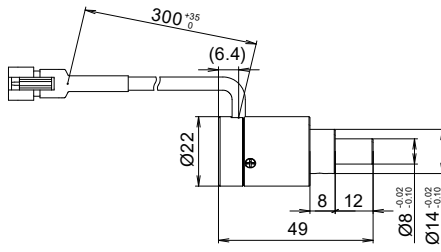
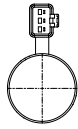
Common Specifications for the HLV3-C Series

Connector	SMR-03V-B
Polarity	1: Signal, 2: (+), 3: (-)
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

Specifications by Model

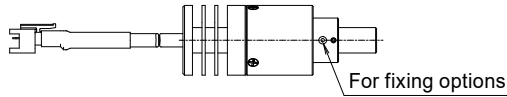
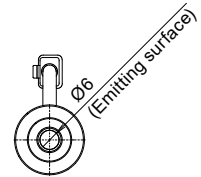
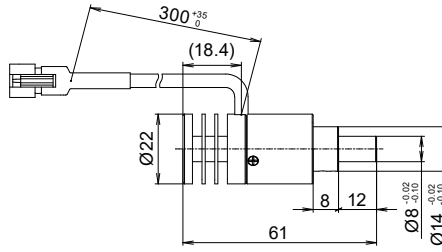
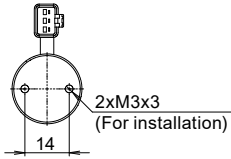
#	Model name	LED color	Peak wavelength / correlated color temperature (typ.)	Input current (max.)	Power consumption (max.)	Weight (max.)
①	HLV3-22RD-1C	Red	630 nm	385 mA	1.1 W	34 g
	HLV3-22SW-1C	White	5600 K		1.3 W	
	HLV3-22BL-1C	Blue	465 nm		1.4 W	
	HLV3-22GR-1C	Green	520 nm		1.4 W	
②	HLV3-22RD-2C	Red	630 nm	700 mA	2.0 W	39 g
	HLV3-22SW-2C	White	5600 K		2.4 W	
	HLV3-22BL-2C	Blue	465 nm		2.6 W	
	HLV3-22GR-2C	Green	520 nm		2.7 W	
③	HLV3-22RD-2C-1220	Red	630 nm	700 mA	2.0 W	40 g
	HLV3-22SW-2C-1220	White	5600 K		2.4 W	
	HLV3-22BL-2C-1220	Blue	465 nm		2.6 W	
	HLV3-22GR-2C-1220	Green	520 nm		2.7 W	
④	HLV3-22RD-4C	Red	630 nm	1000 mA	3.0 W	39 g
	HLV3-22SW-4C	White	5600 K		3.5 W	
	HLV3-22BL-4C	Blue	465 nm		3.8 W	
	HLV3-22GR-4C	Green	520 nm		4.0 W	

1 HLV3-22RD-1C / SW-1C / BL-1C / GR-1C

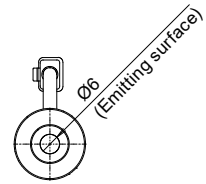
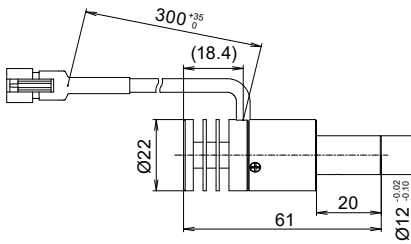
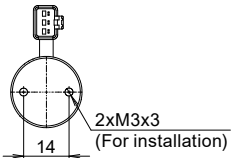


2 HLV3-22RD-2C / SW-2C / BL-2C / GR-2C

4 HLV3-22RD-4C / SW-4C / BL-4C / GR-4C

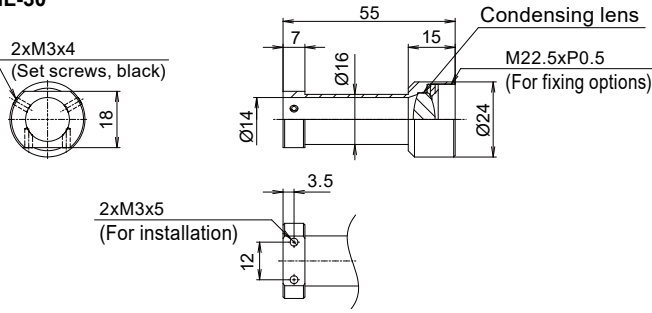


3 HLV3-22RD-2C-1220 / SW-2C-1220 / BL-2C-1220 / GR-2C-1220

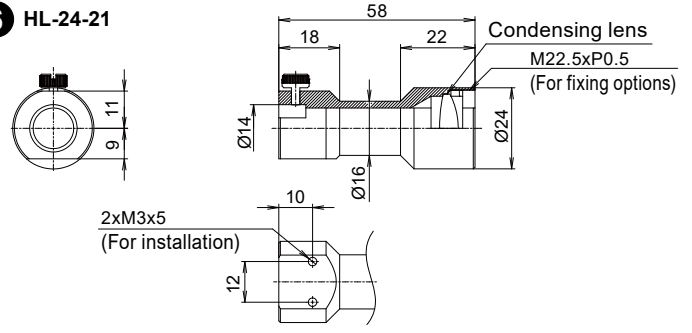


9 Optional Accessories (Sold Separately)

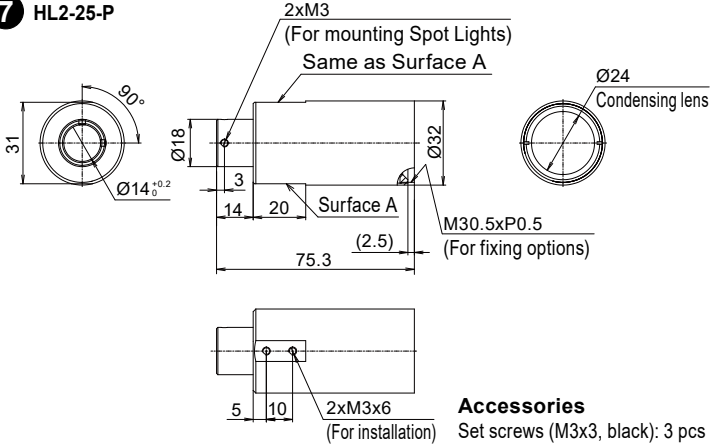
5 HL-30



6 HL-24-21



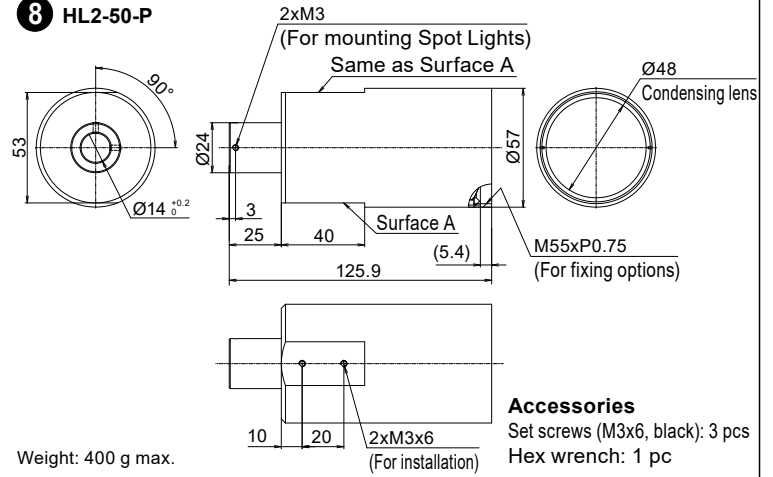
7 HL2-25-P



Weight: 85 g max.

Accessories
Set screws (M3x3, black): 3 pcs
Hex wrench: 1 pc

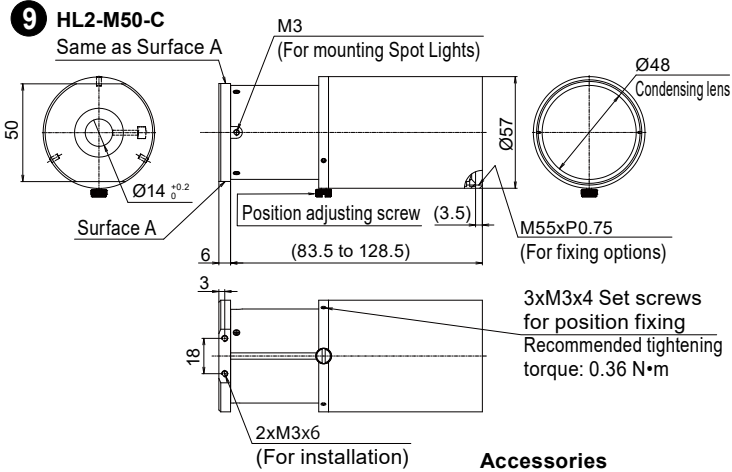
8 HL2-50-P



Weight: 400 g max.

Accessories
Set screws (M3x6, black): 3 pcs
Hex wrench: 1 pc

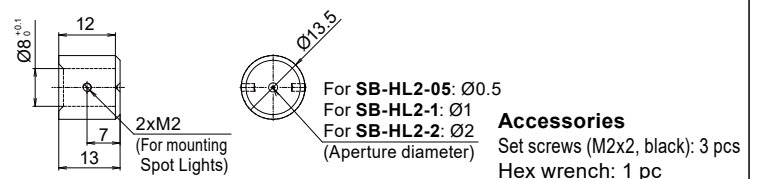
9 HL2-M50-C



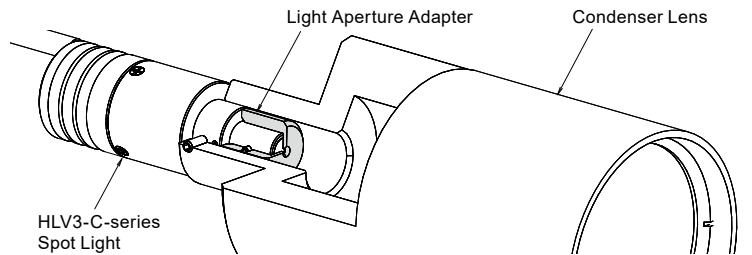
Weight: 350 g max.

Accessories
Set screws (M3x6, black): 2 pcs
Hex wrench: 1 pc

10 Light Aperture Adapter



Put the Light Aperture Adapter and Condenser Lens all the way onto the tip of the Spot Light.



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