

TH-PF 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.

	These symbols indicate prohibited actions.		This symbol indicates required actions.
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Warning	
Do not disassemble or modify the Light Unit. 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 Light Unit with wet hands. Doing so may result in electric shock.	To use the Light Unit, connect it to a High Power Strobe Control Unit from CCS. Using any power supply other than a High Power Strobe Control Unit may result in fire or Light Unit failure.
Make sure that the Light Unit 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 High Power Strobe Control Unit. Failure to do so may result in circuit damage, fire caused by a minute spark, or electric shock.
These Light Units generate high temperatures. Do not touch the Light Unit 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 Light Unit is to be used in a closed space.	If abnormal condition occurs such as fuming, heat, smell, noise, or so on, stop using the Light Unit immediately, turn OFF the Control Unit and unplug the power cord. A fire or electric shock may result if the Light Unit is kept used.

Caution	
Do not use user-made cables. Doing so may cause Light Unit failure. Use the CCS extension cable if it is necessary to extend the distance between the Light Unit and the Control Unit.	Do not drop the Light Unit or subject it to impact. Doing so may cause the Light Unit to malfunction.
Be careful of static electricity. Damage to the LED light may occur, if a person charged with static electricity touches it. Keep the Light Unit away from all items charged with static electricity.	Use the High Power Strobe Extension Cables (5 m or shorter). 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 Light Unit in the following situations.

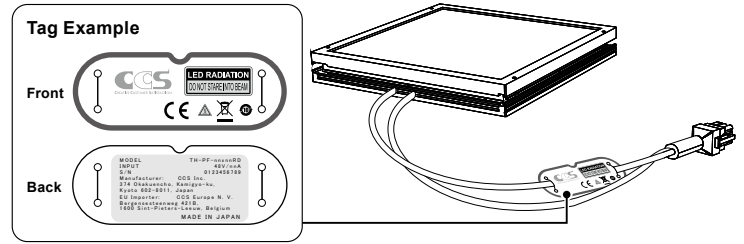
- Under conditions or in an environment not described in this instruction guide.
- In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
- In applications involving serious risk to life or property,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

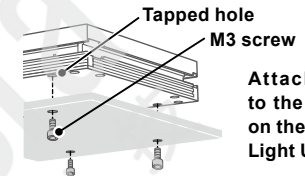
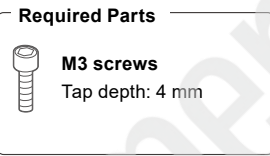
2 Confirming Product Information

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, peak current, and serial number. Be sure to check the contents before using the Light Unit and handle the label with care. If the label is missing or damaged and the contents cannot be checked, please contact CCS Inc.



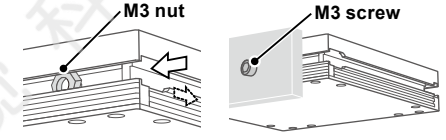
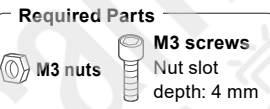
3 Installation

Bottom Installation



Attach M3 screws to the tapped holes on the bottom of the Light Unit to fix it.

Side Installation



Insert the M3 nut into the slot of the frame. Fix the Light Unit with M3 screw.

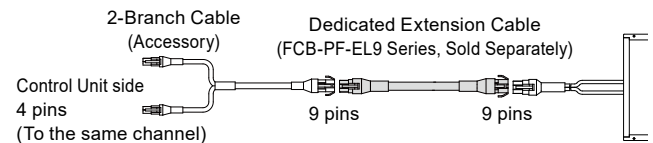
Recommended tightening torque: 0.6 N·m

4 Operating Instructions

Mandatory Actions Make sure that the High Power Strobe Control Unit is turned OFF before you connect the Light Unit.

1 Connect the light cables to a High Power Strobe Control Unit.

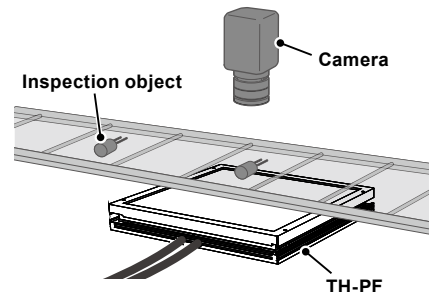
- Connect the light cable to a High Power Strobe Control Unit. The High Power Strobe Control Unit must be equipped with ELR-04NV connectors for power output.
- Use a 2-branch cable that comes with the Light Unit and connect the Light Unit and a High Power Strobe Control Unit. Connect both of the 4-pin connectors of the 2-branch cable to the output connectors that supply power on the same channel of a Control Unit. For example, connect the 4-pin connectors to the L1-1 and L1-2 output connectors on a PF-A4048-2 Control Unit.



- Insert the plug all the way into the connector.
- Dedicated Extension Cables are optionally available for the Light Units. For details, refer to 6. *Dedicated Extension Cables FCB-PF-EL9 Series (Sold Separately)*.

2 Turn ON the High Power Strobe Control Unit, and then turn ON the Light Unit.

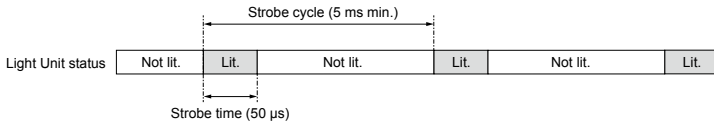
3 Adjust light range, light angle, and radiant quantity to optimize images. Adjust the radiant quantity at the Control Unit.



4 Operating Instructions (Continued)

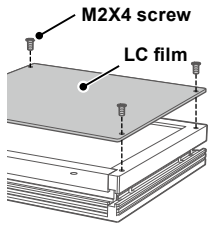
Warning Use the Light Unit within the lighting conditions (maximum strobe time and maximum duty cycle*). Exceeding the lighting conditions, such as performing continuous lighting using a power supply other than a High Power Strobe Control Unit, may result in fire or Light Unit failure. For the lighting conditions, refer to 7. Main Specifications.

* The duty cycle is the strobe operation ratio expressed by the following equation:
 Duty cycle (%) = 100 X Strobe time/Strobe cycle
 For example, if you want to restrict the duty cycle to 1% or less when the strobe time is 50 μs, you must make the Light Unit flash with a cycle of 5 ms or longer.



5 Dedicated Options (Sold Separately)

1 Light Control Films (LC Films)



Attach M2X4 screws to the tapped holes in the top surface to fix the LC film.

Recommended tightening torque: 0.1 N·m

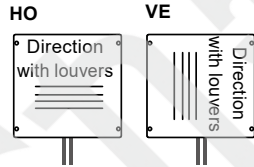
Model name	Accessories
LC-TH-100X100-HO	LC-TH-100X100-VE
	M2X4 screws 5 pcs.

Description of Model Names

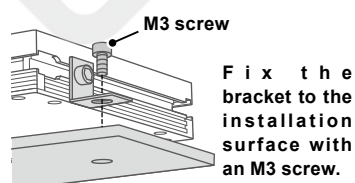
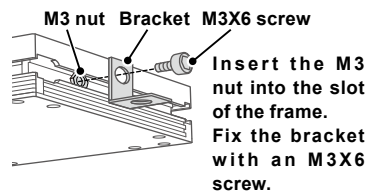
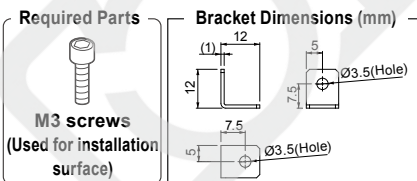
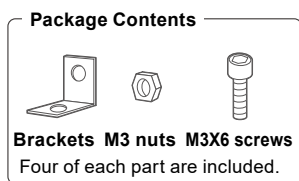
LC-TH-□X□-□
 ① Applicable TH-PF series model name
 ② Direction of louver on LC Film

HO: The direction of louvers goes horizontal when installing LC film on the TH-PF Series as shown on right-hand side.

VE: The direction of louvers goes vertical when installing LC film on the TH-PF Series as shown on right-hand side.



2 Bracket BK-TH-LE12

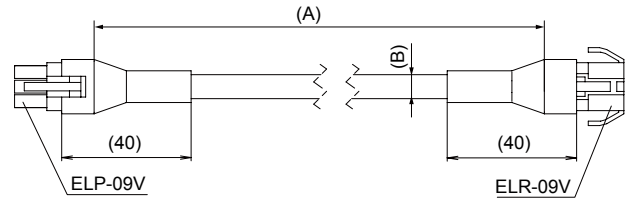


Recommended tightening torque: 0.6 N·m

6 Dedicated Extension Cables FCB-PF-EL9 Series (Sold Separately)

These extension cables are used for connecting the TH-PF-100X100-series Light Unit and the High Power Strobe Control Unit.

FCB-1-PF-EL9 / 2-PF-EL9 / 3-PF-EL9 / 5-PF-EL9 (Unit: mm)



Model name	FCB-1-PF-EL9	FCB-2-PF-EL9	FCB-3-PF-EL9	FCB-5-PF-EL9
Dimension A	1,000	2,000	3,000	5,000
Dimension B	Ø7.4	Ø7.4	Ø7.4	Ø9.1
Weight	100 g max.	190 g max.	270 g max.	680 g max.
Permitted bending radius	44.4 mm	44.4 mm	44.4 mm	54.6 mm

7 Main Specifications

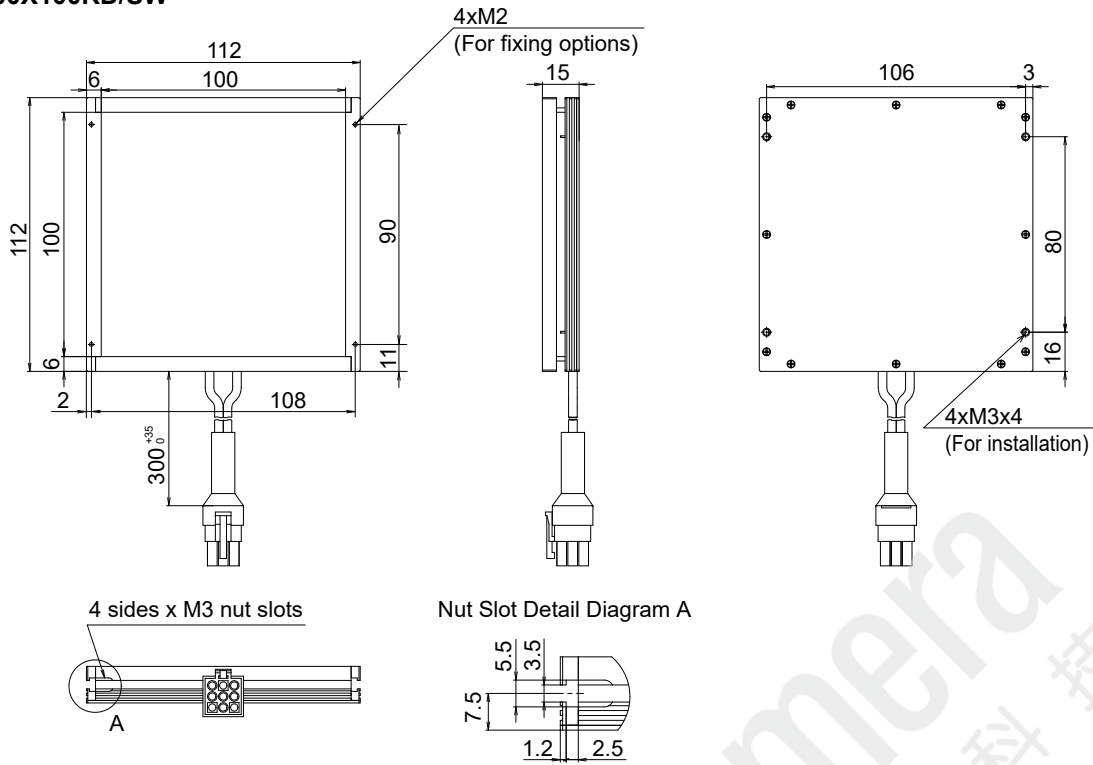
Common Specifications

Input voltage	48 VDC max.
Lighting conditions	Maximum strobe time: 500 μs, Maximum duty cycle: 1%
Connector	ELP-09V
Polarity, signal	1: (+), 2: (+), 3: (-), 4: (-), 5: (+), 6: (+), 7: (-), 8: (-), 9: NC
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 EN 62471-1
Case material	Aluminum alloy, resin
Accessories	Instruction guide, 2-branch cable (Model: FCB-0.3-PF-W-EL4-EL9)

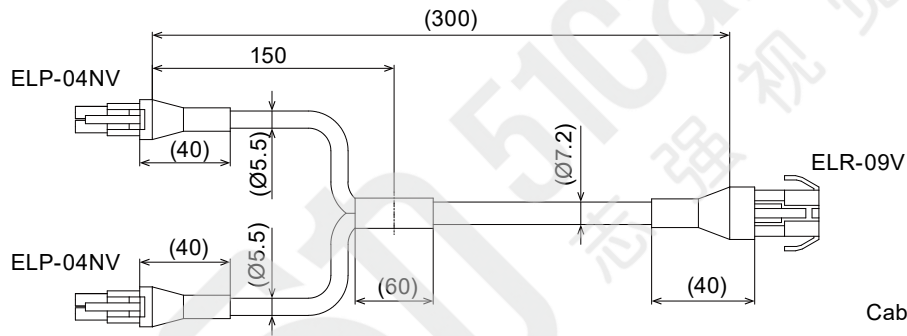
Specifications by Model

Model name	LED color	Peak wavelength / correlated color temp. (typ.)	Peak current	Weight (max.)
TH-PF-100X100RD	Red	625 nm	41 A	200 g
TH-PF-100X100SW	White	5200 K		

TH-PF-100X100RD/SW



2-Branch Cable (Accessory for the TH-PF-100X100-Series Light Units)



Model: FCB-0.3-PF-W-EL4-EL9
Cable permitted bending radius: 43.2 mm



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