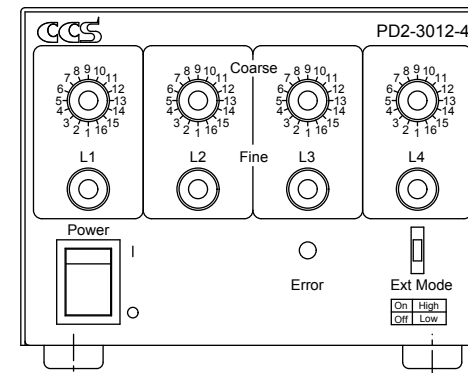
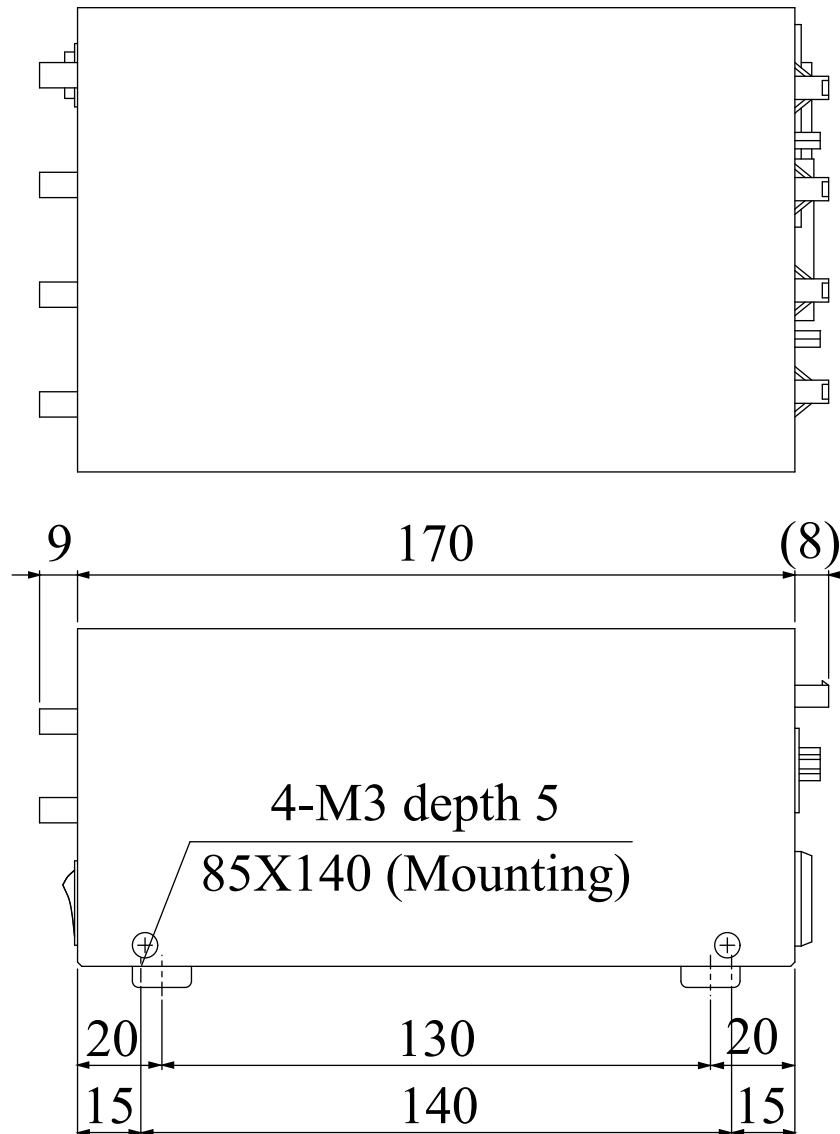


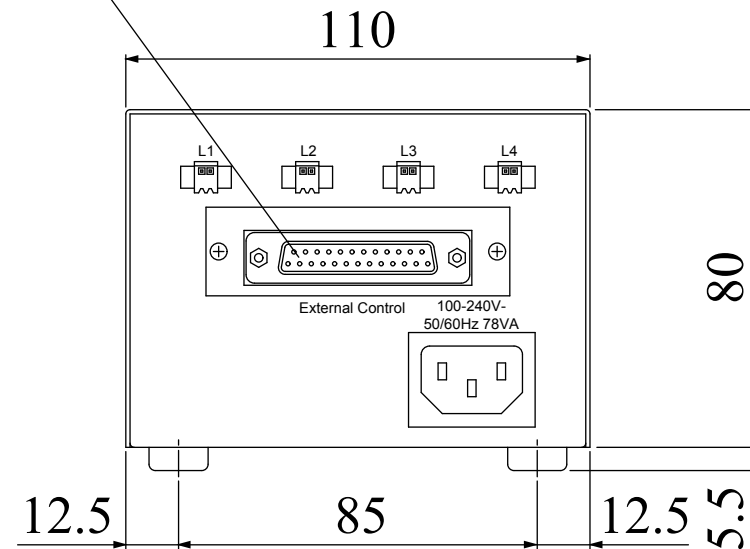
PD2-3012-4/ PD2-3024-4

Model	PD2-3012-4	PD2-3024-4
Power requirements	AC100-240V 78VA	AC100-240V 78VA
Output	12V/27W	24V/27W
Mass	1200g	1200g
Connector type	2P (1: +, 2: -) x4	3P (1: +, 2: NC, 3: -) x4

Third Angle Projection Units: mm



External control connector
D-Sub25pin



Digital Power Supplies

PD2 Series



Models with CE Marking:
 PD2-3012 / PD2-3024 / PD2-5012 / PD2-5024 / PD2-3012-2 /
 PD2-3024-2 / PD2-3012-4 / PD2-3024-4 / PD2-3012-8 / PD2-3024-8

Offers repeatable, linear light intensity control with 256 discrete levels using course and fine adjustments

The PD2 Series of digital power supplies are designed specifically for use with CCS LED lights. Compared with analog power supplies, the PD2 Series provides a more linear and repeatable intensity control because of the force-detent adjustment course/fine adjustment knobs and benefits of pulse duty control. The PD2 Series is suitable for all CCS lights without dedicated power supplies. The Series is designed to meet the requirements of the widest variety of applications with the 12 and 24V options, power ratings range, and the number of independent output channels. The PD2 Series is compatible with RoHS Directive*, ensuring compatibility with worldwide requirements.



PD2-1012/PD2-1024

PD2-3012/PD2-3024

PD2-5012/PD2-5024

PD2-3012-2/PD2-3024-2

PD2-3012-4/PD2-3024-4

PD2-3012-8/PD2-3024-8

Selecting a PD2 Series power supply

- (1) Select a 12-V or 24-V output models according to the voltage of a LED lights used.
- (2) Select from the 10-watt or 30-watt models according to the total of power consumption of LED lights to be used.
- (3) Select from 2-channel, 4-channel, or 8-channel models to according to the number of independent outputs needed (multiple lights can be connected to a single output channel with a 2 or 4 way split cables).
- (4) Select one of the optional external control cables. (Refer to information on page 63)

PD2 Series Specifications

Model	PD2-1012	PD2-1024	PD2-3012	PD2-3024	PD2-5012	PD2-5024	PD2-3012-2	PD2-3024-2	PD2-3012-4	PD2-3024-4	PD2-3012-8	PD2-3024-8
Input voltage ¹⁾	100~120V AC						100~240V AC					
Input current ²⁾	0.25A typ.		0.78A typ.		1.3A typ.		0.78A typ.					
Frequency	50/60Hz											
Inrush current ²⁾	15A typ.											
Number of channels	1	1	1	1	1	1	2	2	4	4	8	8
DC output voltage	12V	24V	12V	24V	12V	24V	12V	24V	12V	24V	12V	24V
Output power	9.5W max.	9.0W max.	28W max.	28W max.	46W max.	46W max.	28W max.	28W max.	27W max.	27W max.	25W max.	25W max.
Intensity control	Control method : 60kHz (approx.) pulse duty control Manual : 256-level of intensity control using dual 16 position Coarse and Fine rotary knob on the control panel External control : Intensity control using 8-bit parallel signal											
External control input	Input circuit : At + 5.0V with 4.7k Pull-up resistor.								Input circuit : At + 5.0V with 1.5k Pull-up resistor.			
	HS-CMOS, Low level: 1.35V or less, High level: 3.15V or more											
External control connector	D-Sub 15-pin (male)								D-Sub 25-pin (male)			
ON/OFF control	Manual : 3.5-mm microphone jack External control : D-Sub 15-pin ON signal (Asynchronous with write sequence)								Manual/□ : D-Sub 25-pin OFF signal External control (Asynchronous with write sequence)			
ON/OFF response	OFF - ON: 10μs typ., ON - OFF: 10μs typ.											
Startup time	0.5sec typ.											
Output overcurrent protection	Activated by 107% minimum of the rated output current and reset by turning the power supply ON with front panel power switch.											
Operating environment	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)											
Weight	0.7kg or less		1.1kg or less		1.3kg or less		1.1kg or less		1.2kg or less		1.5kg or less	

1) Operating voltage: 85 to 132VAC or 85 to 264VAC, 2) At a voltage of 100VAC



PD2 Quad/Octal Channel Series Instruction Guide



Power Supply Units for LED Lights

PD2-3012-4(A)/3024-4(A)/3012-8(A)/3024-8(A)





1. Safety Precautions

*Read this instruction guide before using the product.

Thank you for purchasing a CCS product. To properly use the product, please read this instruction guide before use and keep it for your future reference. Be sure to pay special attention to the information marked with “⚠ Warning” and “⚠ Caution.” The information is provided to prevent injury from electric shock and other accidents.

 Warning	Indicates incorrect usage may result in serious injury or death.
 Caution	Indicates incorrect usage may result in injury or equipment damage.

Warning

(1) Always use one of the following power cords. 100 to 120V range: SVT type, AWG18, length: 3m max., dielectric strength: 125V min. (Note: This power cord is required for compliance with UL) 200 to 240V range: H05W-F type, AWG18, length: 3m max., dielectric strength: 250V min. (Note: This power cord is required for compliance with EU)	
(2) Plug in or unplug the power cord after turning OFF the supplied power. Otherwise, fire or electric shock may occur. Plug the power cord directly into the wall socket. Please use the product within electricity voltage/current specifications. Otherwise it may cause fire and/or electric shock. Please unplug the power cord when connecting or disconnecting the product and peripherals. Do not damage or place heavy objects on power cord. There are risks of damaging the cord, which may result fire or electric shock.	
(3) If the product is damaged, turn it OFF, unplug the power cord from the wall socket, and contact CCS. Continued usage of the product may result in fire or electric shock.	
(4) Follow the operating procedures stipulated for the product in this manual. Failure to do so may result in diminished protection capabilities.	
(5) The product operates at a power supply voltage of 100 to 240V AC. The supplied power cord, however, is for use with 100V. If the product is to be used at 200V or above, use a 200V power cord.	
(6) For mounting products in system racks or cases, do not insert M3 type screws more than 6mm. Doing so may cause short-circuit to internal components.	
(7) Do not disconnect power cord or disassemble product while operating. Doing so may result in electric shock.	
(8) Do not touch the terminals, plugs, or switches with wet hands. Doing so may result in electric shock.	
(9) Ground the power supply. Use a 3-pin AC cord with ground terminal for the power supply.	

- (10) If smoke appears, the product becomes abnormally hot, unusual smells or sounds are generated, or any other abnormality occurs, stop using the product immediately and turn OFF the power.



Caution

- (1) Illuminators become very hot during use. For this reason, do not use them in a closed space. If it is necessary to use them in a closed space, provide sufficient cooling in the form of fans or other cooling devices.
- (2) Install products in following locations:
- On a flat and stable locations with minimal vibration
 - Well-ventilated places with minimal dust.
 - 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.
 - Places that are not subject to sudden temperature changes.
 - Places where products can be grounded.
- (3) Observe the following items for the Power Supply:
- Always provide dedicated electric power source with stable voltage. Sharing the electric power source with power devices, such as inverters, motors, and so on, may cause product to malfunction.
 - Disconnect the power plug when the product is not to be used for an extended period of time.
 - Do not place the power cord near a heat-generating device, and do not allow the power cord to be scratched.
 - Do not touch the power cords or connect peripheral devices during lightning. This may result in electric shock.



2. Overview

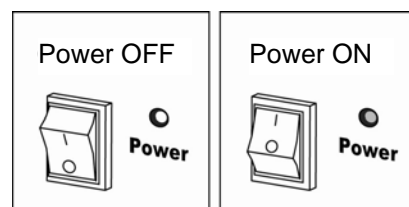
This power supply is for exclusive usage with LED lighting made by CCS.

1. The PD2-3012-4(A)/3024-4(A) can control 4 lights, and the PD2-3012-8(A)/3024-8(A) can control 8 lights respectively. Light intensity can be controlled in internal mode using the coarse and fine intensity control knobs on the front panel of the product or in external mode using a PLC, microcomputer, or other device.
2. The external ON/OFF control is available in product.
3. The PD2-3012-4(A)/8(A) can supply up to 12V at 2.25A (27W) or 2.08A (25W) and the PD2-3024-4(A)/8(A) can supply up to 24V at 1.13A (27W) or 1.05A (25W) for CCS LED lighting. Do not exceed the maximum wattage for the total number of circuits.

3. Operating Procedure

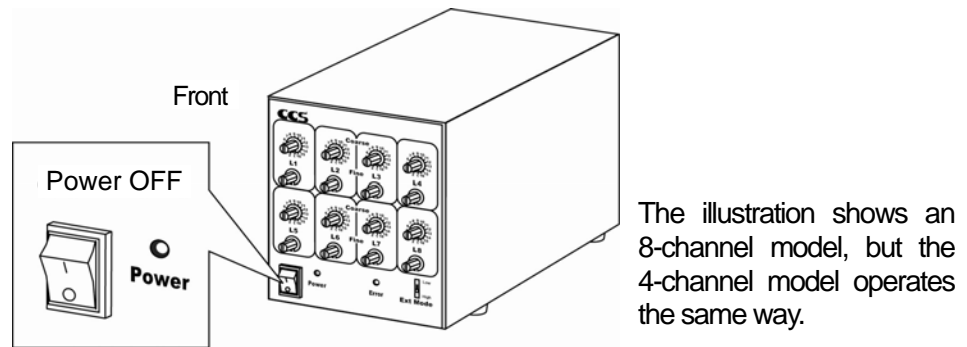
Turning the power ON/OFF

○ side of the power switch is OFF.
The power is ON when | side is pressed.
(The power lamp will be illuminated)

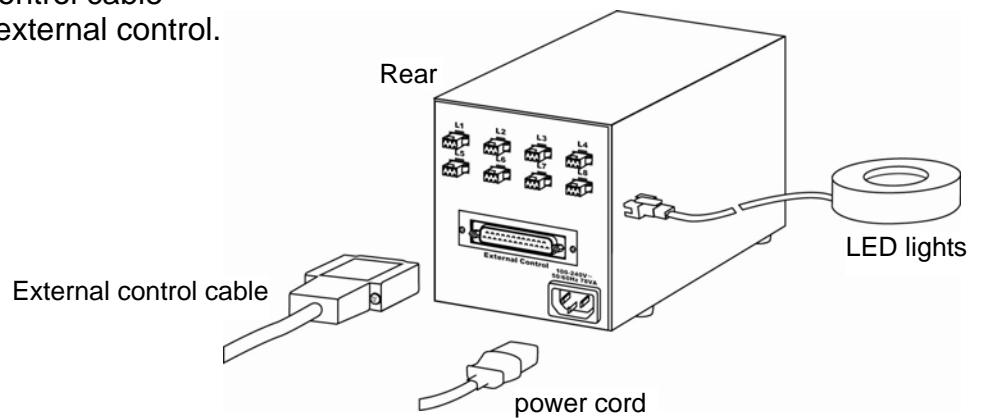


Turning ON lighting

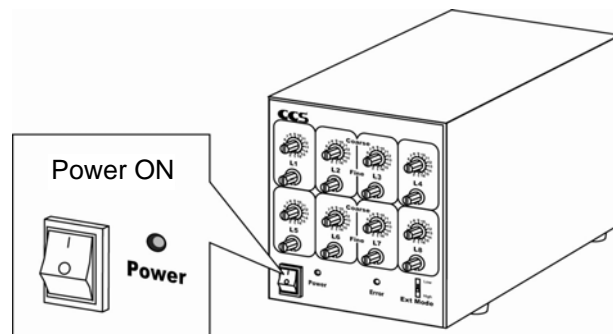
1. Check the power supply switch to make sure it is turned OFF.



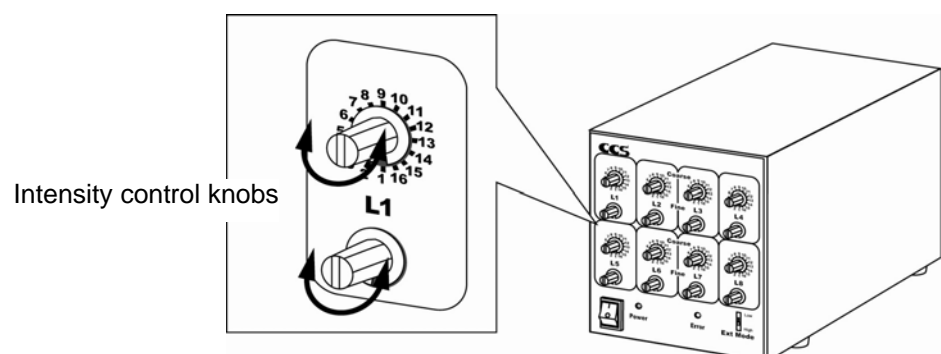
2. Connect the LED lighting to the power supply.
3. Plug the AC power cord of the power supply into a wall socket.
4. Connect an external control cable if it is the case to use external control.



5. Turn the power ON.
(The power lamp will be illuminated)

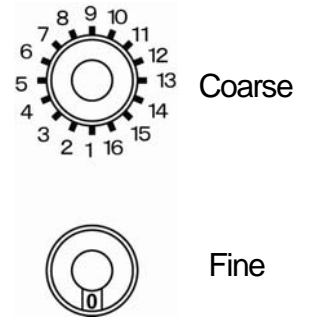


6. Use the intensity control knobs to set lighting intensity.



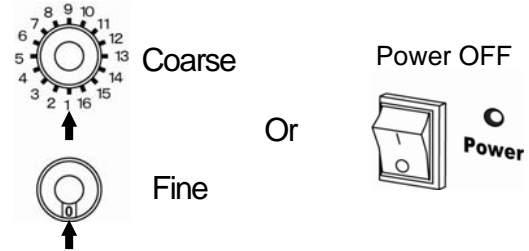
Adjusting lighting intensity

1. Turn the intensity control knobs on the front panel of the product to set the lighting intensity. Each front panel knob controls light intensity in 16 steps. With 16 fine steps for every coarse step (16 steps), the result is up to 256 steps of extremely fine light intensity control.



Turning OFF lighting

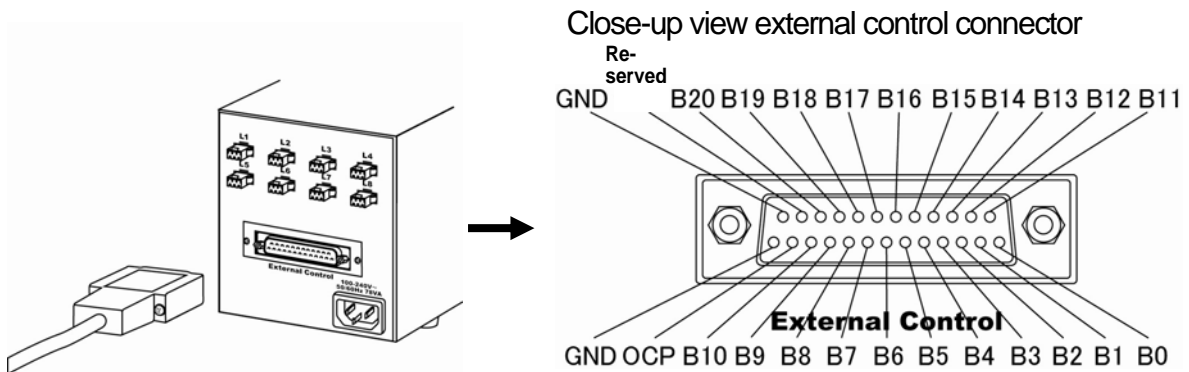
1. Set the coarse 1 and fine 0.
Or
2. Turn the power OFF.
(The power lamp will be turned OFF)



External control

External control

1. A Dsub terminal is provided on the rear panel of the product for external control. The product can be controlled externally using parallel bit control.



2. Pin bit arrangement for external control terminals
(B10 and B17 to B20: Not supported by the PD2-30 □□-4(A))

Bit	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Structure	Light intensity bit (0 to FF)								Channel selection bits (0 to 7)		
Bit	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
Structure	EXT	WR	CH.1 ON	CH.2 ON	CH.3 ON	CH.4 ON	CH.5 ON	CH.6 ON	CH.7 ON	CH.8 ON	OCP (Output)

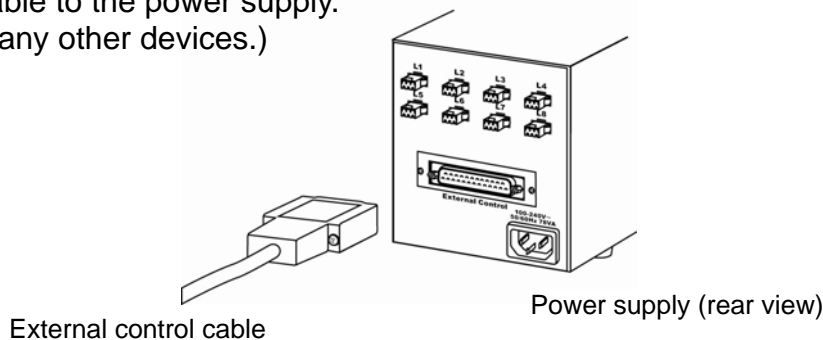
A driver IC or an open collector outputs a signal to each terminal and the external control signals are input to the product at CMOS level.

3. Optional external control cable is manufactured by CCS.

4. The product support the following types of external control.
 - External and manual light intensity control selection
 - Channel selection
 - Light intensity settings
 - Lighting ON/OFF control
 - Overcurrent protection signal monitoring

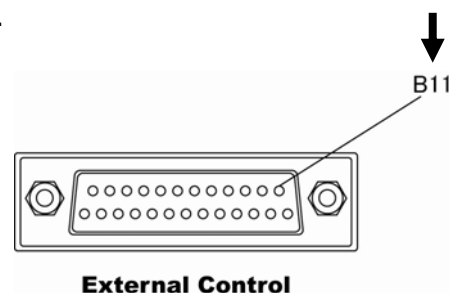
External control

1. Connect the external control cable to the power supply. (Also connect the lighting and any other devices.)



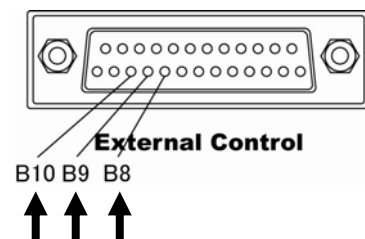
2. Input the desired control signal from the external control cable.

- 1) External and manual light intensity control selection
Set bit B11 of the Dsub external control connector to Low to set the product to external control mode. Light intensity from the front panel is disabled in this mode. Set bit B11 to HIGH to enable light intensity from the front panel and disable externally controlled light intensity.



- 2) Channel settings
Set the channel of the lighting that the product will control. Use bit B8 to B10 on the Dsub external control connector to specify the channel.

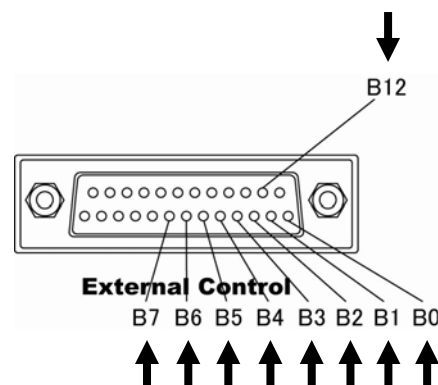
Channel / bit No.	1CH	2CH	3CH	4CH	5CH	6CH	7CH	8CH
B8	0	1	0	1	0	1	0	1
B9	0	0	1	1	0	0	1	1
B10	0	0	0	0	1	1	1	1



Note: This table shows the conditions when logic "0" is active and logic "1" is inactive. The signal level of the external control input terminal is negative logic, in which case logic "0" and logic "1" are reversed.

Please be [case of logic "0"] sure to set PD2-3012-4(A)/3024-4(A) to Active.

- 3) Light intensity settings
Set the 8 bits from B0 to B7 as well as B12 to control light intensity. Specify up to 256 steps using bits B0 to B7 and send the write signal to write bit B12 to write the light intensity data to the product. Keep the write signal Low for at least 300μs to write the data, and switch the signal back to HIGH after the minimum write time has elapsed to stop writing data.

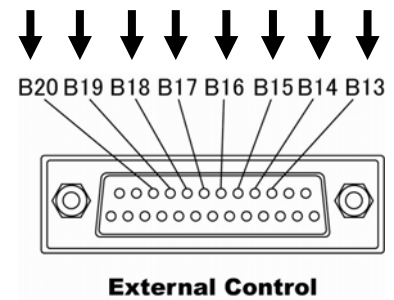


Note: Light intensity settings are enabled only as long as the power supply remains ON and will be lost when the power supply is turned OFF.

steps	B7 [MSB]	B6	B5	B4	B3	B2	B1	B0 [LSB]	Light intensity(%)	Coarse	Fine
0	0	0	0	0	0	0	0	0	0.0	1	0
1	0	0	0	0	0	0	0	1	0.4	1	1
2	0	0	0	0	0	0	1	0	0.8	1	2
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
19	0	0	0	1	0	0	1	0	7.6	2	2
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
253	1	1	1	1	1	1	0	1	99.2	16	D
254	1	1	1	1	1	1	1	0	99.6	16	E
255	1	1	1	1	1	1	1	1	100.0	16	F

4) Lighting ON/OFF control

After you have selected the light intensity level, Use bit B13 to 20 for channels 1 to 8) for ON/OFF control.



Ext Mode selection switch on the front panel set at HIGH

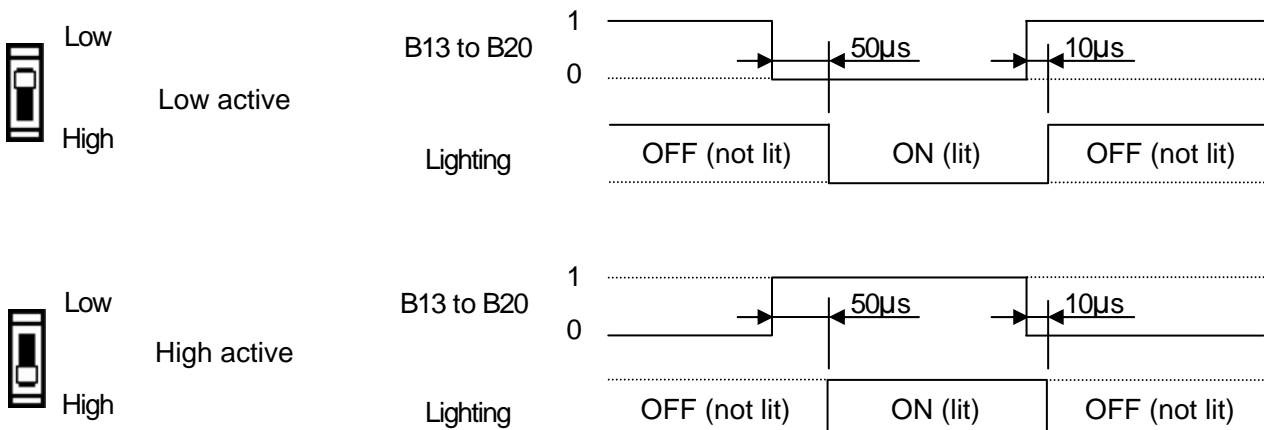
Set the ON/OFF terminal signal to HIGH to turn ON the light, set the bit to Low to turn OFF.

Ext Mode selection switch set at Low

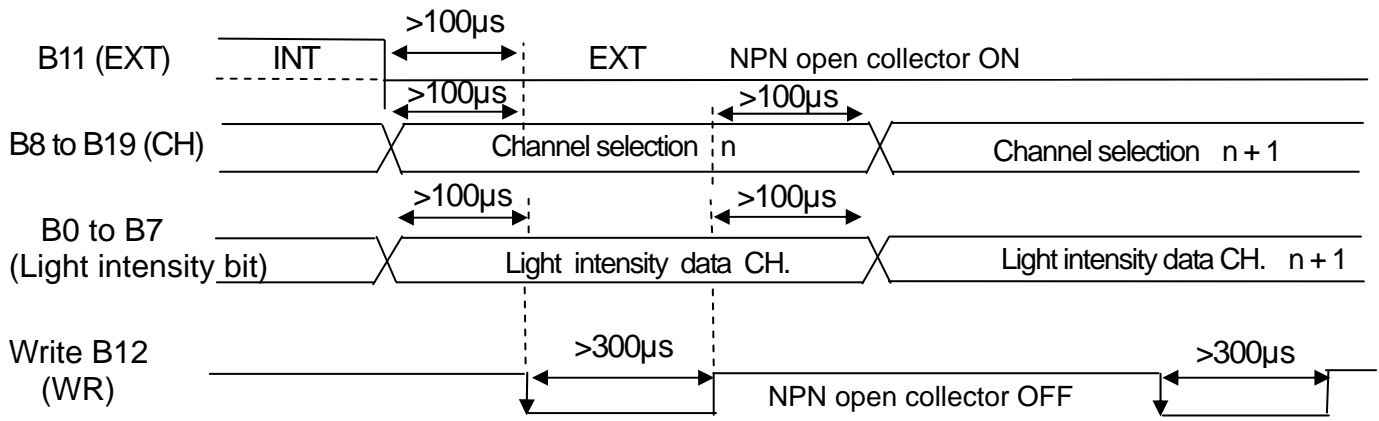
Set the ON/OFF terminal signal to Low to turn ON the light, set the bit to HIGH to turn OFF.

Note: Please set the Ext Mode selection switch to High at manual light intensity control.

The lighting doesn't light when it is Low.



Write sequence

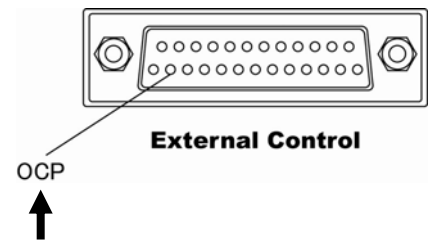


1. External control mode (B11: EXT) outputs in negative logic (Low: 1).
2. The channel selection bits (B8 to B10) output in negative logic.
3. Light intensity data (B0 to B7) output in negative logic (Low: 1)
4. The write bit is output (data is written when the write signal is fall edge).
Keep the write signal HIGH after the data is written.
5. Data entry cycles must be 500µs or longer.

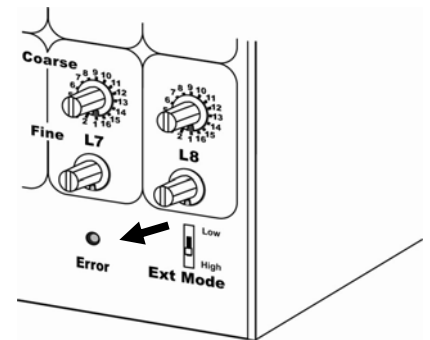
Overcurrent protection

Overcurrent protection output

The overcurrent protection output is a monitoring signal that becomes active when overcurrent is detected. It is an output from OCP. Output circuit is an open collector, with negative logic (active Low).



The product output stops if lighting current consumption (total of all channels) exceeds 107% of the rated current consumption. Also, the red error indicator on the front panel of the power supply will light and output cannot be resumed until the power supply is restarted.



4. Connectors

1. Output connectors

SM connectors (JST)

Pin number	12V output	24V output
1	OUT + (12V)	OUT + (24V)
2	OUT -	NC
3		OUT -
Connector	SMP-02V-B	SMP-03V-BC

2. External control connectors: 25-pin D-sub male with M2.6-mm screws

Each signal is pulled up to the 5V in the internal circuits with resistance.
Use a shielded cable of 3m or less for the control line.

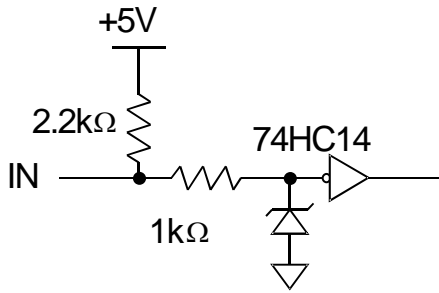
Pin number	Signal	Pin number	Signal
1	Light intensity B0 (LSB)	14	External control B11 (INT/EXT)
2	Light intensity B1	15	Light intensity data write B12 (WR)
3	Light intensity B2	16	Lighting control B13 (ON 1)
4	Light intensity B3	17	Lighting control B14 (ON 2)
5	Light intensity B4	18	Lighting control B15 (ON 3)
6	Light intensity B5	19	Lighting control B16 (ON 4)
7	Light intensity B6	20	Lighting control B17 (ON 5)
8	Light intensity B7 (MSB)	21	Lighting control B18 (ON 6)
9	Select circuit B8	22	Lighting control B19 (ON 7)
10	Select circuit B9	23	Lighting control B20 (ON 8)
11	Select circuit B10	24	Reserved
12	Overcurrent protection OCP	25	Signal GND
13	Signal GND		

Note: Please fix the B10 of PD2-3012-4(A)/3024-4(A) in opening or a High level.

Optional cable: external control cable(cable length: 3m, with one side of the cable cut)

Note: Please read instruction guide using optional cable.

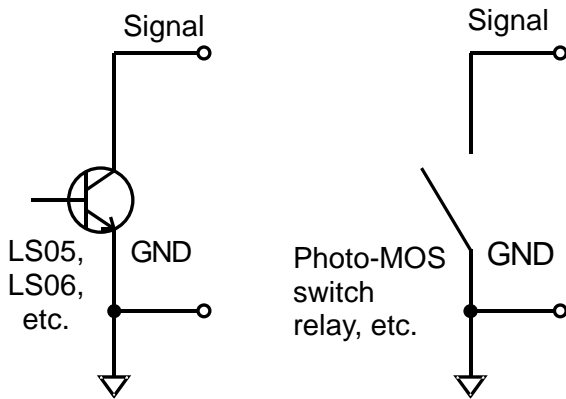
5. PD2 input circuit (negative logic)



Light intensity data: B0 to B7
 Control signals: CH, EXT, WR, and OFF
 Output using a driver IC or NPN open collector
 The 24V output of the sequencer cannot be input as it is. (Maximum allowable input voltage: 5.5V)

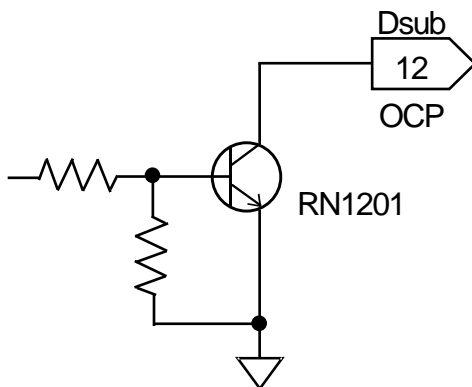
PD2 side:
 1V max. at low level (0.8V max. is recommended)
 High level: 3.5V min. (4V min. is recommended)

6. Recommended control signal drive circuits



When using the product in a noisy environment, we recommend that you isolate the signal and ground lines from the control unit with photocouplers or photo-MOS relays. Any element that supplies around 10mA can be used to drive the circuit.

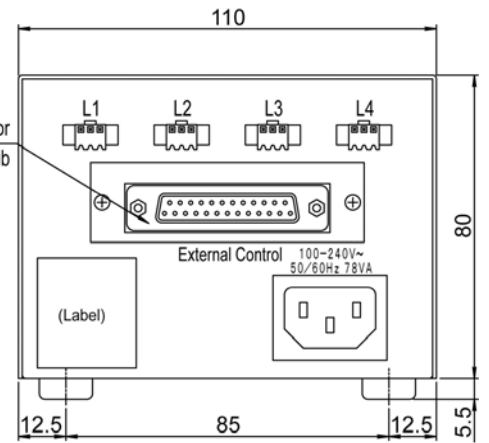
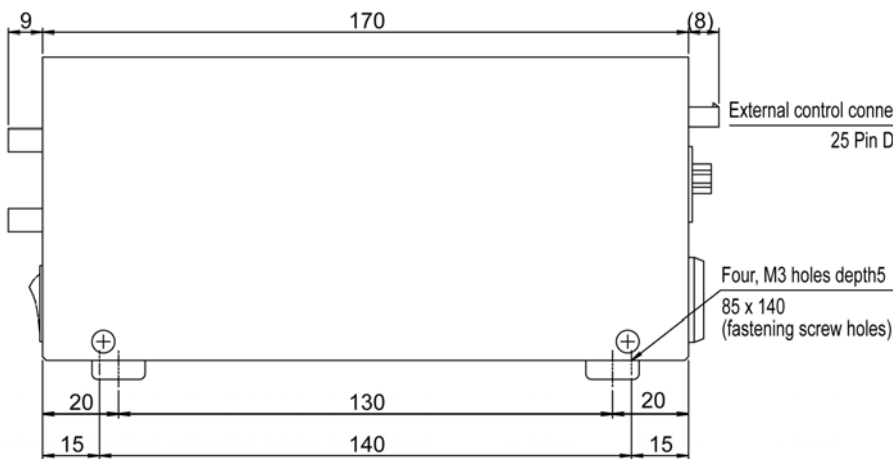
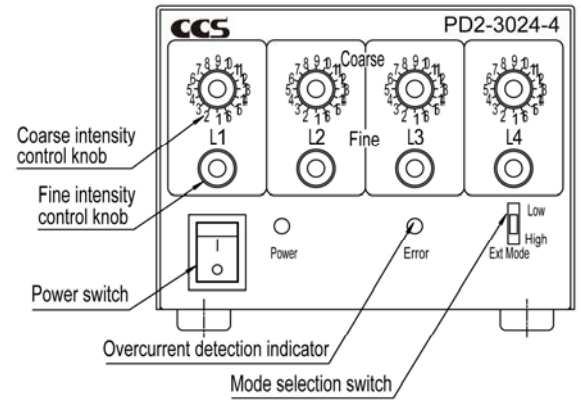
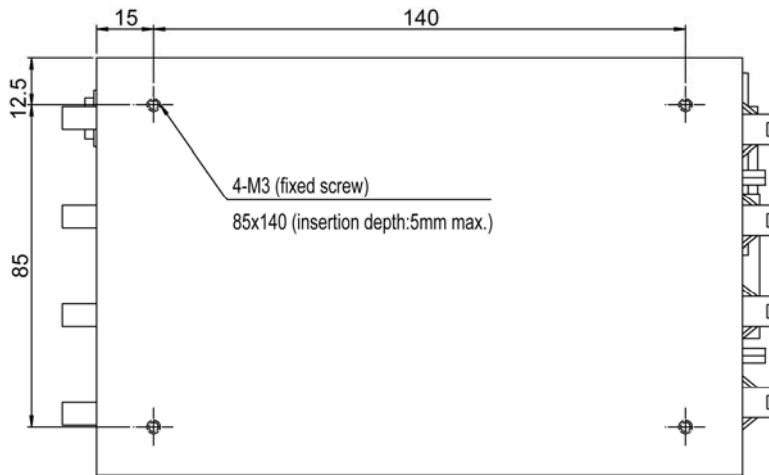
7. PD2 overcurrent protection signal output circuit (open collector)



Output transistor: RN1201 (mfd. by Toshiba)
 V_{CE0} : 50V
 I_c : 100mA
 Max. current capacity: 100mA

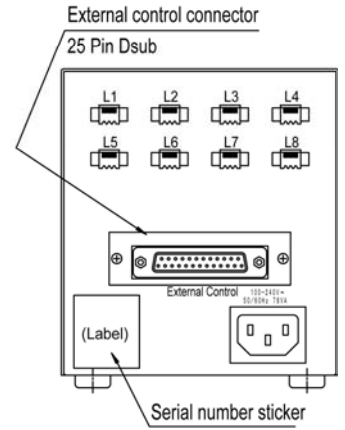
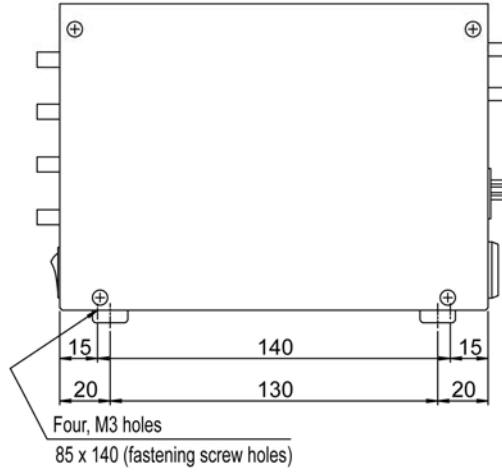
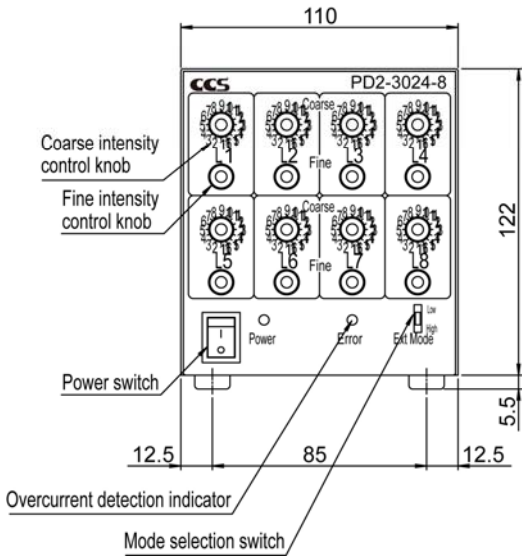
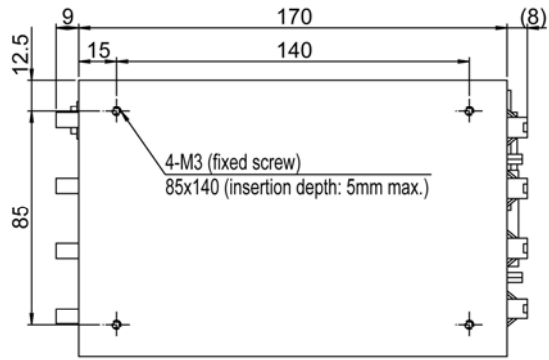
8. Dimensional Diagrams (mm)

PD2-3012-4(A) / PD2-3024-4(A)



Supplied 3-prong AC power cord (2m)

PD2-3012-8(A) / PD2-3024-8(A)



Supplied 3-prong AC power cord (2m)

9. Specifications

Models	PD2-3012-4(A)	PD2-3024-4(A)	PD2-3012-8(A)	PD2-3024-8(A)
Input voltage (Rating) [*1]	100-240V AC			
Power consumption (typ.)	78VA typ.			
frequency	50/60Hz			
Leakage current	3.5mA max. (264V AC, 60Hz, under full-load condition)			
Overcurrent protection [*2]	Operates at 107% min. Automatically reset, or manually reset by turning power OFF then ON again.			
Between input and output connectors	1500V AC for one minute 10mA max. cutoff current 500V DC, 20M Ω min.			
Between input connector and frame ground	1500V AC for one minute 10mA max. cutoff current 500V DC, 20M Ω min.			
Operating temperature and humidity	Temperature: 0 to 40°C Humidity: 20 to 85%RH (with no condensation)			
Storage temperature and humidity	Temperature: -20 to 60°C Humidity: 20 to 85%RH (with no condensation)			
Vibration	Acceleration: 19.6m/sec ² Frequency: 10 to 55Hz in 3-minute intervals Sweeping cycle: In X, Y, and Z directions for 1 hour each.			
Cooling method	Natural air cooling			
Altitude	2000m max.			
Protective ground class	Class I			
Pollution	Pollution level: 2			
Safety standard	CE marking EN61010-1			
EMC Mandates	EN61326			
Environmental regulation	RoHS directive			
Input connector	External control connector: 25-pin D-sub (plug, M2.6 millimeter screws)			
Output connector	Lighting output connector: SMP-02V-BC / SMP-03V-BC / SMP-04V-BC (socket) (JST)			
Dimensions	W110 X D170 X H80mm		W110 X D170 X H122mm	
Material, coating, and surface treatment	SECC t1.0, paint color N3 (leather-tone finish)			
Weight	1.2kg		1.5kg	
Accessories [*3]	2-m long 3-prong AC power cord, Instruction Guide, Optional Cable List			

*1: The operating voltage range is -15% to +10% of the input voltage.

*2: The overcurrent protection circuit is activated when the rated load is exceeded.

(Power supply operation is stopped by internal circuits. Restart the power supply to restore operation.)

*3: External control cable not included

10. Care and Handling

Warning

- Turn OFF the Power Supply and unplug it from the outlet before handling.

Caution

- Do not scratch the unit by handling it with a hard object.
- Do not let water or cleanser enter the unit.
- Do not use cleansers or chemical agents other than those listed below.

For cleaning, dampen a soft cloth with diluted neutral cleanser, wring out the cloth, and gently wipe off the unit. Use another soft cloth to wipe the unit dry.

■ RoHS Directive

● 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	1000ppm Min
Mercury	1000ppm Min
Cadmium	100ppm Min
Hexavalent chromium	1000ppm Min
PBB	1000ppm Min
PBDE	1000ppm Min

(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, which products contain

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
	Power supply for 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>Note: Lead and cadmium are excluded in EU RoHS.</p>							

Usage deadline for environmental protection

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 need to be re-used or discard appropriately following local law and regulations, complying with safety and usage caution.

产品中有毒有害物质或元素的名称及含量

环保使用期限	产品	有毒有害物质或元素					
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
	LED照明专用电源	×	○	×	○	○	○
<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>							

环保使用期限

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。

■ Warranty Information

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 normal use 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 normal use 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 subjected 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

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.

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.



Head Office
Shimodachiuri-agaru, Karasuma-dori
Kamigyo-ku, Kyoto 602-8011 Japan
Phone: +81-75-415-8284, Fax: +81-75-415-8278

<http://www.ccs-grp.com>
intlsales@ccs-inc.co.jp

Copyright(c) 2008 CCS Inc. All Rights Reserved.

Description in this instruction guide is based on the information as of April 2008.

KZ01894-T001-000