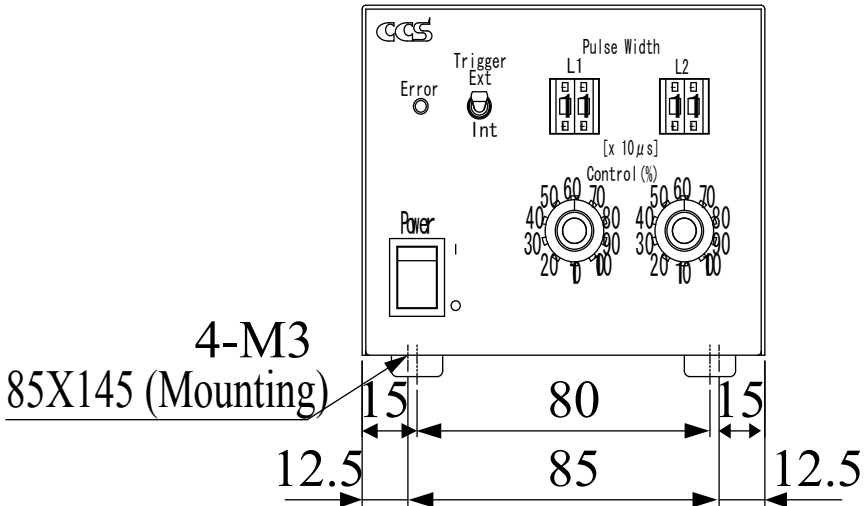
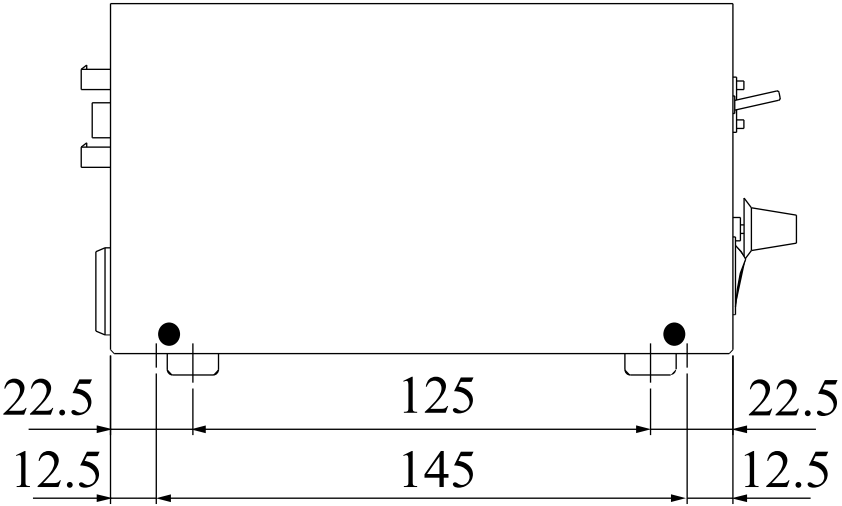
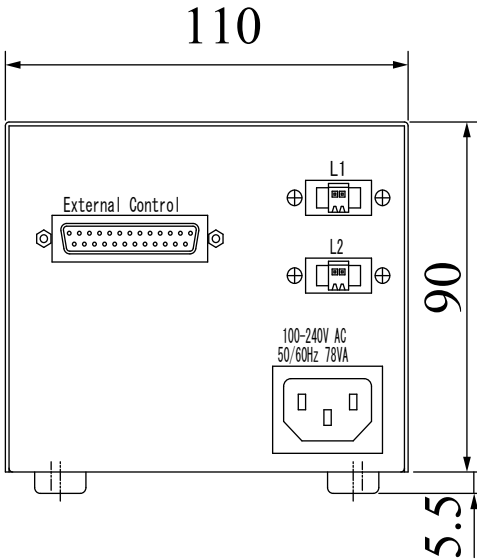
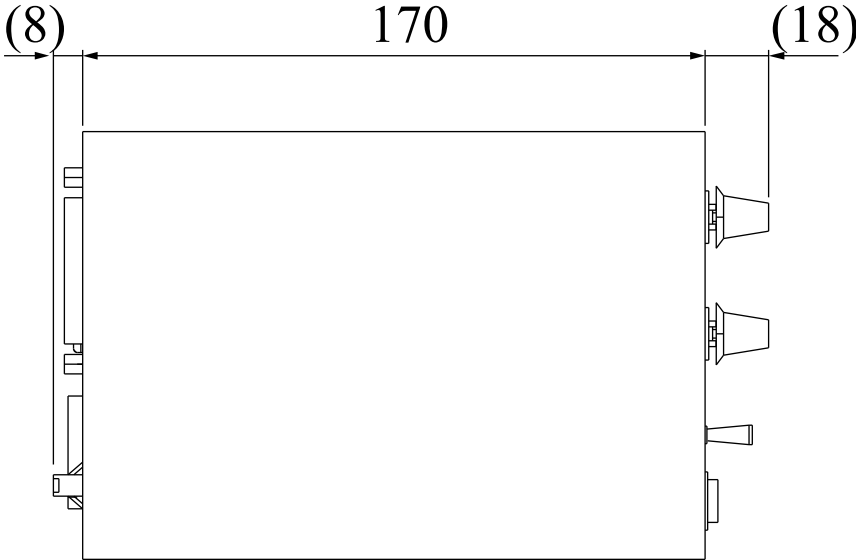


# PTU2-3012/ PTU2-3024

Model	PTU2-3012	PTU2-3024
Power requirements	AC100-240V 78VA	AC100-240V 78VA
Output	12V/27W	24V/27 W
Mass	1040g	1040g
Connector type	2P (1: +, 2: -) x2	3P (1: +, 2: NC, 3: -) x2

Third Angle Projection Units: mm



# Power Supply Units for CCS LED Lights

Power supply unit lineup available for a wide variety of applications

Please select a best-suited power supply unit according to your intended use and objective.

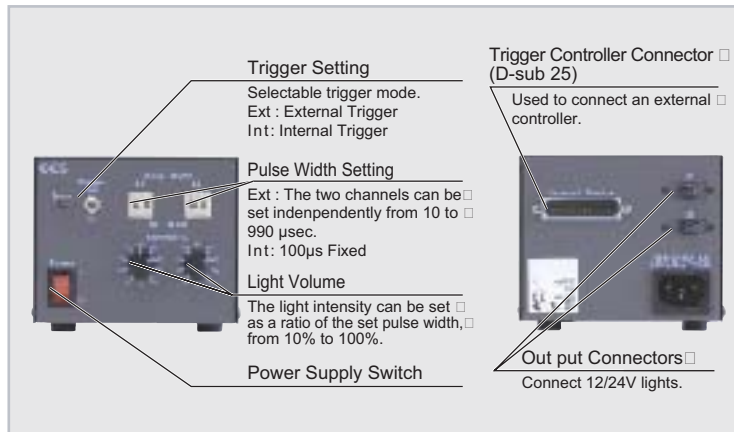
## Strobe Power Supplies

*PTU2-3012/PTU2-3024*

Compatible with more than CCS LED lights

The PTU power supply Series enables CCS standard lights to be used with strobes. It enables the lights to emit several times bright than using the On/Off control function of the conventional PSB and PD Series, or by strobe lighting using STU-3000. The units have two independent circuits with separate controls for each circuit. The strobe illumination time can be set from 10  $\mu$ s to 990  $\mu$ s using rotary controls.

### Part Names and Functions



### Specifications

RoHS Directive Compatible

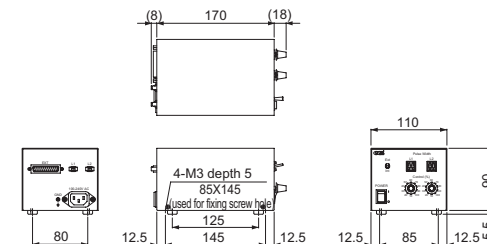
Output	2 circuits max, 27W
Illumination Mode	(Strobe) Internal Trigger/External Trigger
Trigger Input	Photocoupler Input (5 mA), with Insulated Power Supply
Power Supply	100 ~ 240V AC 78VA
Output Connector	SMP-02V X 2 (12V) / SMP-03V X 2 (24V)
Trigger Input Connector	D-sub 25pin, male
Strobe illumination Width	10 $\mu$ s to 990 $\mu$ s, set with 2-digit thumb-rotary switch
Trigger Cycle	Int: 1msec, Ext: 1msec or more at 10% duty or less
Option	External Trigger Cable: STCB-25-3 (3m)



Models with CE Marking : PTU2-3012/PTU2-3024

### Dimensions (Unit: mm)

PTU-3012 / 3024







# PTU2(A) series Instruction Guide






## Strobe Power Supply Units for LED light



### 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.

 <b>Warning</b>	Indicates incorrect usage may result in serious injury or death.
 <b>Caution</b>	Indicates incorrect usage may result in injury or equipment damage.

 <b>Warning</b>	
(1) Do not disassemble or modify the product. There is a risk of fire or electric shock.	
(2) Confirm that input voltage/current matches with the product specifications. Otherwise it may cause fire and/or electric shock. Make sure all power cords are unplugged in order to connect or disconnect the products and peripherals. Do not scratch or place heavy objects onto the power cord. There is a risk of fire or electric shock.	
(3) Make sure that no water penetrates the product and check that the product is not wet. There is a risk of fire or electric shock.	
(4) Do not touch any terminal, plug, or switch with wet hands. There is a risk of electric shock.	
(5) If thunder occurs, do not touch the power cord or connect peripherals. Lightning bolts may result in electric shock.	

 <b>Caution</b>	
(1) Connecting LED light from other manufacturers may result in malfunction or accidents. CCS assumes no responsibility for damages or injuries resulting from using LED light not manufactured by CCS with the product.	
(2) Do not locate the product in places subject to direct sunlight or high humidity. Doing so may cause the internal temperature to rise, resulting in fire.	
(3) Do not place the product on unstable objects, such as a wobbly stand or inclined surface. Doing so may cause the product to fall or topple, resulting in injury.	
(4) Always use a grounded wall socket. Otherwise it may cause electric shock.	
(5) Do not drop or subject the product to strong impacts. Doing so may cause the product to malfunction.	
(6) Always provide a dedicated power supply with stable voltage. Sharing the power supply with power devices, such as inverters or motors, may cause the product to malfunction.	
(7) Do not bundle cables connected to the product together with high-voltage lines or power lines. Doing so may cause the product to malfunction. Keep the cables as far as possible from lines of this type.	
(8) Do not bend the cables when wiring the product or allow the cables to be caught between any objects. Doing so may cause the product to malfunction.	
(9) The unit operates at a power supply voltage of 100 to 240V AC. The supplied power cable, however, is for use with 100V. If the unit is to be used at 200V or above, use an appropriate power cable.	
(10) Before moving the product, disconnect the Power cord and all other connection cables. Damaging the cables may result in fire or electric shock.	

(11)	Do not disconnect the Power cord or open the frame while the product is operating. Doing so may cause the product to malfunction.	
(12)	When disconnecting the Power cord, be sure to hold and pull the plug part. Pulling the Power cord part may result in fire or electric shock.	
(13)	Wipe off the electrodes of the Power cord with a dry cloth when dust has adhered to them. Failure to do so may result in fire.	
(14)	When the rubber foots are removed to mount the unit in a system rack or case, the portion of the M3 screws penetrating the case must be less than 5 mm long. If this portion is longer, internal components may be short-circuited.	
(15)	Do not wipe the product with paint thinner or benzine. Otherwise it may cause it to be discolored or deteriorated.	
(16)	Do not short-circuit the output positive and negative terminals. Doing so may cause the product to malfunction.	
(17)	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.	
(18)	Install the product in the following locations. <ul style="list-style-type: none"> <li>- Horizontal, stable places with minimal vibration.</li> <li>- Well-ventilated places with minimal dust.</li> <li>- Places where no water, oil, liquid, chemical, or steam will contact the product.</li> <li>- Places free of corrosive or combustible gas.</li> <li>- Places far from water faucets, hot-water heaters, humidifiers, air conditioners, heaters, or stoves.</li> <li>- Places that are not subject to sudden temperature changes.</li> <li>- Places where the product can be grounded.</li> </ul>	

## 2. Features

The standard CCS lights can be used as strobe lights with PTU2 series.

The unit has two connectors and can control two CCS lights as strobe lights independently from external device.

The light pulse width can be set by a pulse width switch from 10μs to 990μs. It is possible to control light intensity from 10% to 100% in external mode.

## 3. Instructions for Use

### 3-1 Connection

- (1) Turn the power off.
- (2) Connect the power cord to outlet.
- (3) Connect the LED light to L1/L2, and the external trigger cable to EXT, in the rear of the power supply.

### 3-2 Power on

Turn the power on.

### 3-3 Setting the trigger mode

- (1) INT (internal trigger)
  - The internal trigger generates a trigger every millisecond inside the power supply regardless of the trigger input signal.
  - Brightness can be varied from 10% to 100% using the “ *Control(%)* ”.
  - It appears to be not strobing light to human eyes.
  - It is used for pre-set, such as LED light positioning and connection.
- (2) EXT (external trigger)
  - The external trigger turns LED light on for pulse width set in the front panel.

### 3-4 Setting the light pulse width

- L1/L2 can be set individually.
- The pulse width switches are used to set the lighting time between 10μs to 990μs.
- It can vary from 10% to 100% of the rotary switch *Control(%)* setting.

Light pulse width = *Pulse Width* x 10μs x *Control(%)* (10% to 100%)

Example: 50 x 10μs x 50 (%) = 250μs

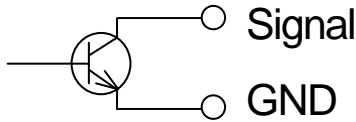
### 3-5 Trigger signal

The external trigger must be 5mA and pulse width 20μs or longer, and refer to 3-7. It is not required to install a current limiting resistor. The power supply is equipped with a constant current diode (Applied voltage: 24V max.). Trigger signal will be ignored in a certain condition. (refer to 3-6)

<Example of drive-side circuits>

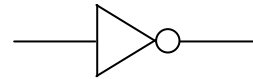
#### (A) No-voltage contact output

LS05, LS06, etc.



#### (B) Voltage output (5 to 24V)

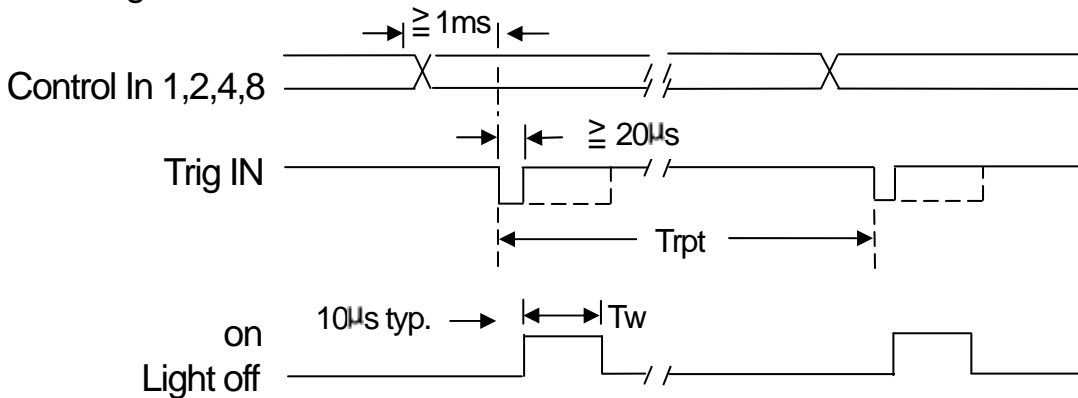
HC04, AC04, etc. (TTL not supported)



LED lights up when the trigger falls in (A)'s case or rises in (B)'s case. Ensure sharp rising and falling edges of the trigger, and prevent chattering and noise interference. Otherwise, malfunction may occur.



### 3-6 Timing chart



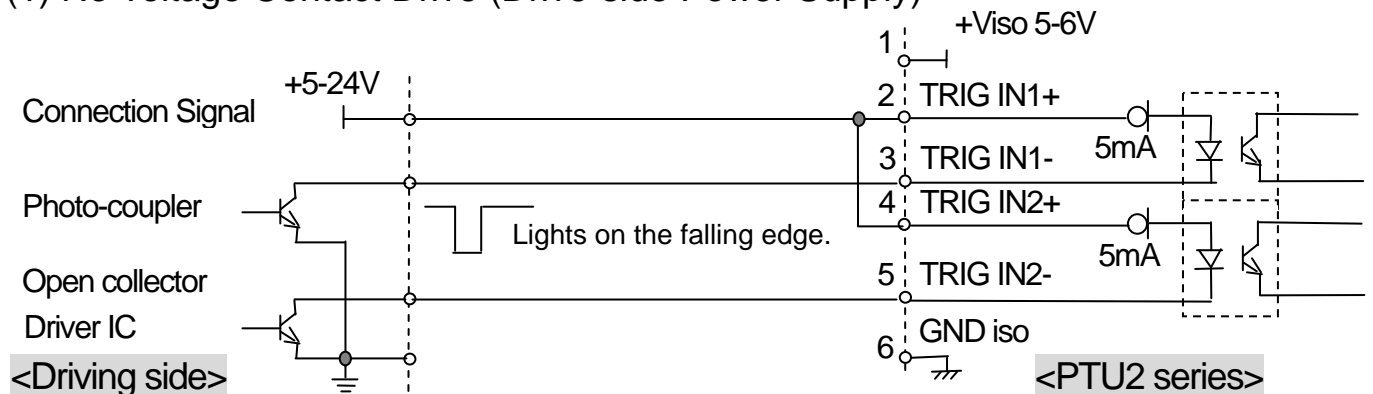
$T_w$ : Set pulse width,  $Tr_{pt}$ : Repeatable trigger cycle  
 $T_w[\mu s] = (Pulse\ Width \times 10\mu s \times Control(\%)) (10\% \text{ to } 100\%)$   
 $Tr_{pt}[\mu s] \geq (Pulse\ Width \times 10\mu s \times 14.2)$

#### Repeatable trigger cycle (Trigger input signal dead zone)

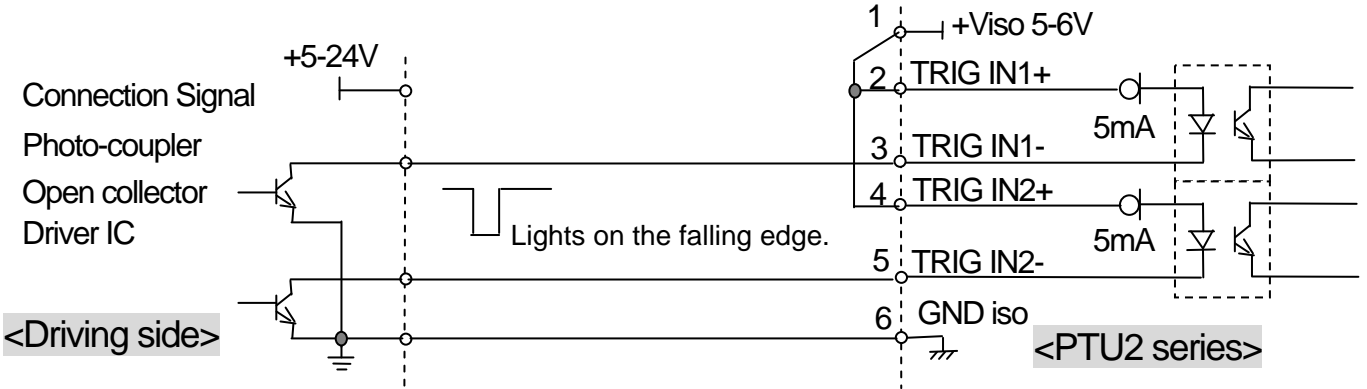
PTU2 power supplies provide lighting with pulse current 3 to 4 times the rated current. Repeatable Trigger Cycle prevents the light from burning up even if some malfunction causes continuous trigger signal input.

### 3-7 Connection Examples

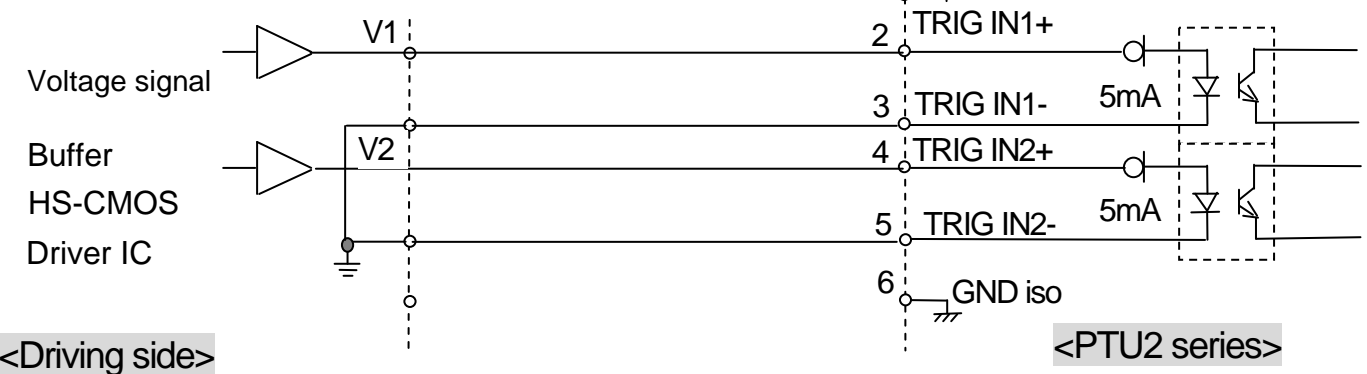
#### (1) No-voltage Contact Drive (Drive-side Power Supply)



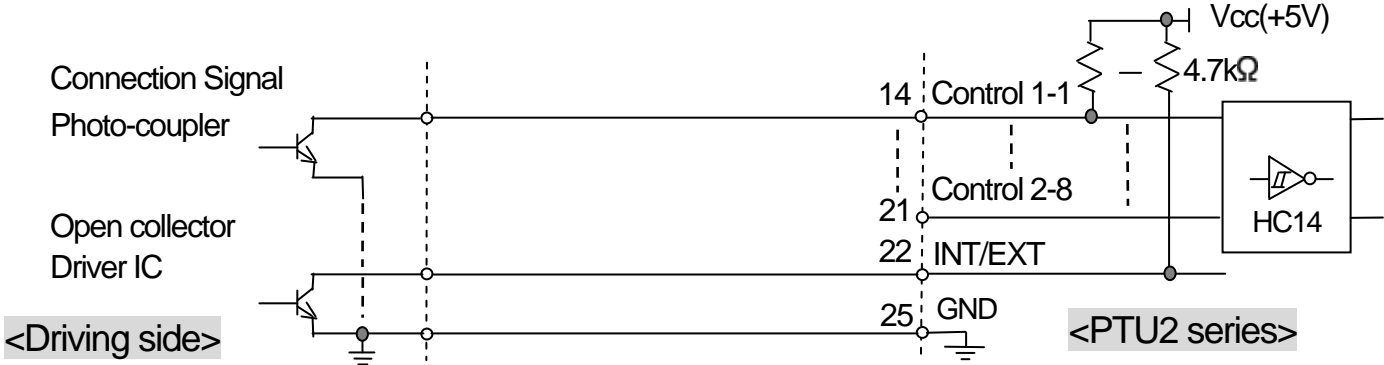
## (2) No-voltage Contact Drive (Insulated Power Supply)



## (3) High Pulse Voltage Output Signal Drive



## (4) External Dimming Input



Low : 0V min. 1.13V max. High : 3.15V min. 5V max.

## 3-8 Light intensity Control signal Input

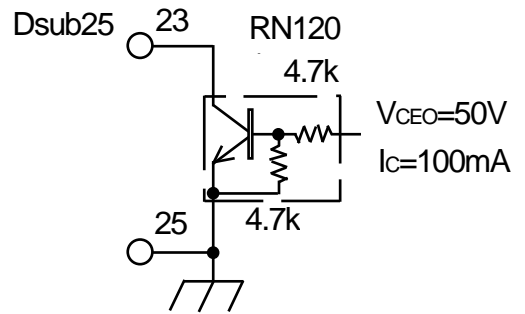
ct1-8	ct1-4	ct1-2	ct1-1	[%]
b3	B2	b1	b0	
H	H	H	H	10
H	H	H	L	20
H	H	L	H	30
H	H	L	L	40
H	L	H	H	50
H	L	H	L	60
H	L	L	H	70
H	L	L	L	80
L	H	H	H	90
L	H	H	L	100

### 3-9 Overcurrent protection

The PTU2 power supply will forcibly turn OFF the output when the current consumption of the lighting exceeds the values in the table below. The Error LED (red) on the front panel will also start blinking. The output interruption will not be canceled until the power supply is restarted.

Model	Consumption current
PTU2-3012(A)	8.5A peak min.
PTU2-3024(A)	6.0A peak min.

Note: OCP OUT load need to be set under 24V 20mA including safe margin.



## 4. Connectors

### 4-1 Output connectors

SM connectors (mfd. by JST)

Pin No.	PTU2-3012(A)	PTU2-3024(A)
1	Output+	Output+
2	Output-	NC
3		Output-
Connector	SMP-02V-BC	SMP-03V-BC

- Notes: 1) NC=Not connect  
2) Do not short circuit between Output +/-

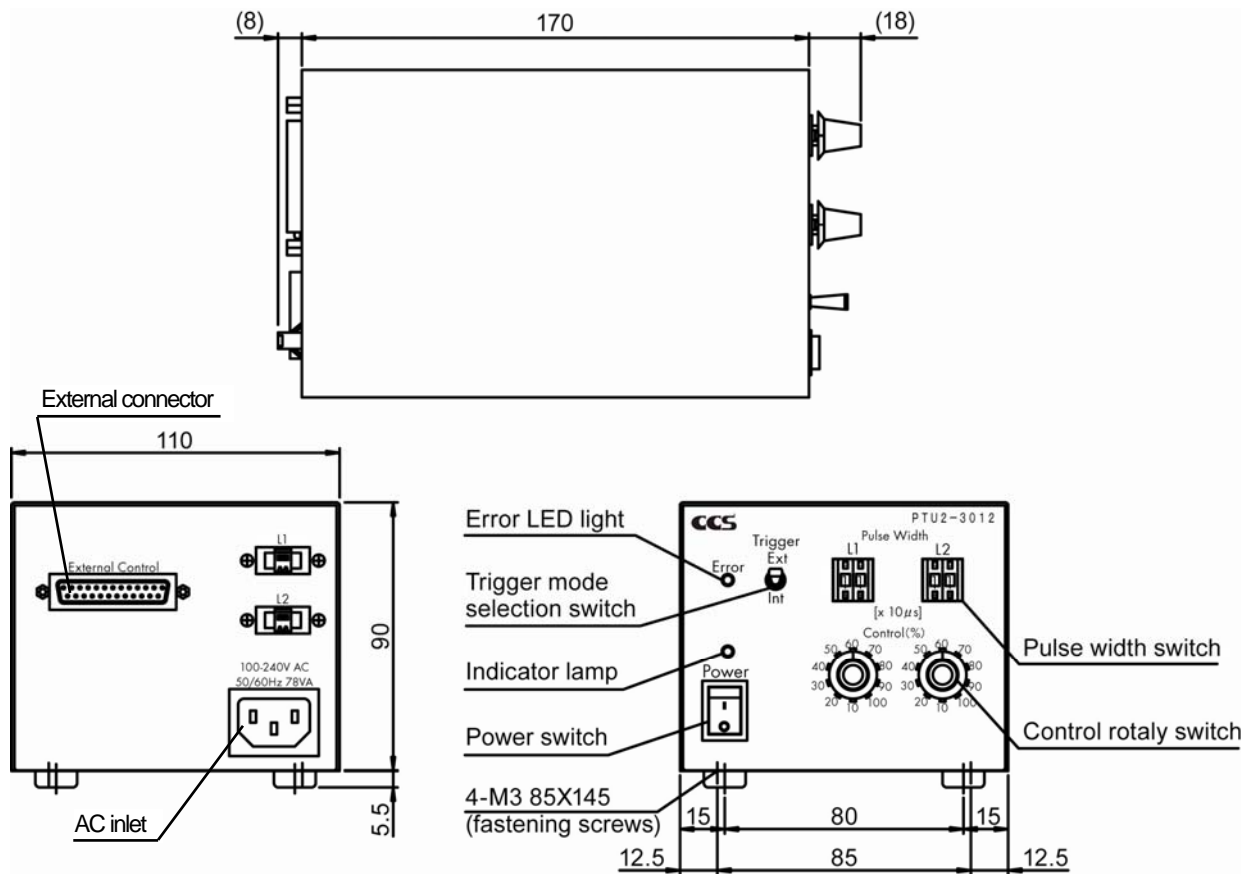
### 4-2 Trigger input connector Dsub25P (Plug) (M2.6mm screws)

No.	Signal	No.	Signal
1	Viso (50mA max.)	14	Control CH. 1 - 1
2	Trig1 +	15	Control CH. 1 - 2
3	Trig1 -	16	Control CH. 1 - 4
4	Trig2 +	17	Control CH. 1 - 8
5	Trig2 -	18	Control CH. 2 - 1
6	GND iso	19	Control CH. 2 - 2
7		20	Control CH. 2 - 4
8	Trig1 Out	21	Control CH. 2 - 8
9	Trig2 Out	22	INT/EXT select
10	Signal GND	23	OCP OUT (Open collector, Active LOW)
11		24	
12		25	Signal GND
13			

- Notes: 1) External control is available when Pin No.22 INT/EXT select is low level.  
2) Use a shielded cable shorter than 3m for a control line cable.  
3) Please read instruction guide using optional cable.

## 5. Appearances

Unit: mm



## 6. Specifications

Model	PTU2-3012(A) / PTU2-3024(A)
Input power	100-240 V AC $\pm 10\%$ (50/60Hz)
Input current	1.5A peak max.
Inrush current	15A typ.
Output	PTU2-3012(A): 18V DC 8.1A max. (This is the peak value of Max load.) PTU2-3024(A): 48V DC 4.3A max. (This is the peak value of Max load.)
Applicable light	Two channel total : 27W max. (Refer to "serial number sticker" attached to the LED light)
Trigger	Trigger mode: Int(Internal trigger): 0.7kHz Pulse width 10 to 100 $\mu$ s (It is used for pre-set, such as LED light positioning and connection.) Ext(External trigger): Photo-coupler input Current: 5mA max. Pulse width: 20 $\mu$ s min. Rising / falling edge: 10 $\mu$ s max. Light duty: 7% max.
Light pulse width	10 $\mu$ s to 990 $\mu$ s Light pulse width = Pulse Width x 10 $\mu$ s x Control(%) (10% to 100%) Pulse Width : 0 to 99 X 10 $\mu$ s Control : 10 to 100% (10% steps)
Light control	INT/EXT Low : EXT High : INT(Control) 10 to 100% light control is possible by a 10-position rotary switch.
External light control input	Non-insulation 4-bit parallel input / channel 5V CMOS level input pull up 4.7k $\Omega$ Low level: 1.13V max. (0V min.) High level: 3.15V min. (5V max.)
Light delay	15 $\mu$ s max.
Trigger ignore time	Trigger signals that are input at intervals of 14.2 times the set pulse width or less are ignored.
Connector	Output SMP-02V-BC (mfd. by JST) for PTU2-3012(A) SMP-03V-BC (mfd. by JST) for PTU2-3024(A) Input Dsub25P (Plug)
Trigger output	Internal photo-coupler ON: Low, pulse output CMOS Signal 8: Trig1 OUT 9: Trig2 OUT 10: Signal GND
Overcurrent protection output	Activates at PTU2-3012(A): 8.5A peak min. PTU2-3024(A): 6.0A peak min. The Error indicator (red) on the front panel blinks when overcurrent is detected. Open collector(35V 50mA) output : ON Turn power off first, then turn power on again to reset.
Safety standard	EN61010-1
EMC Mandates	EN61326, EN61000-6-2, EN61000-6-4
Environmental Regulation	RoHS Directive



Operating environment	Restricted to use in indoor environments - Temperature: 0 to 40°C, humidity: 20 to 85%RH (with no condensation) - Altitude: 2,000 m max. - Pollution level: 2 - Class I Equipment - Overvoltage Category II
Storage environment	Temperature: -20 to 60°C, humidity: 20 to 85%RH (with no condensation)
Weight	1.2kg max.
Accessories	2m long 3 prong power cord with ground terminal, External connector, hood, Instruction guide

Note: If LED(s) light that exceeds the rating (2-channel total: 27 W max.) is used, the strobe output current rating can be exceeded and the output may stop. Always use LED(s) light that is within the rating.

## 7. 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	Mercury	Cadmium	Hexavalent chromium	PBB	PBDE
1000ppm Min	1000ppm Min	100ppm Min	1000ppm Min	1000ppm Min	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>×</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>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	×	○	×	○	○	○

○：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。  
 ×：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。  
 (注) 铅和镉中的“×”，因欧洲RoHS没限定，故用“○”表示。

**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 use on our specified condition 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 use on our specified condition 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.



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