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OPT-DPA6024E

Light Source Controller User Manual



OPT Machine Vision Tech Co.,Ltd.

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Caution and Warning

 Caution and Warning	
	This product should be connected to AC100-240V power supply. Please ensure that the power switch controller is off when plugging in/out the power to prevent against electric shock.
	Please read the manual carefully in advance and strictly follow the instructions when operating the product.
	In case of any abnormal situation, please contact us and never disassemble the product by yourself.
	Please ensure that this product is well grounded to prevent electric shock.
	Do not stare directly into the light emitted from the LED since it does harm to your eyes. If a matched object is used, please take care not to let reflected light to enter your eyes.

Document Version Description

Version	Modification Date	Modification Explanation
V1.0.0	2019.12.10	First release
V1.0.1	2020.8.18	1. Revise the Software Operation Instructions chapter as the OPTControllerDEMO V3.4 description. 2. Add the Document Version Description paragraph

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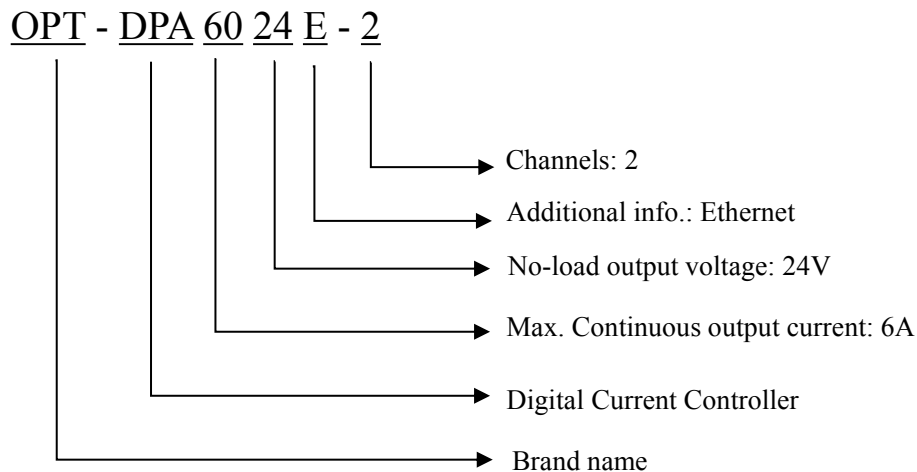
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1. Product Introduction

1.1 Overview

First of all, thank you for choosing the OPT product. This lighting controller is a digital constant current controller which applies to the lighting with voltage range 5 to 24V, current of 200mA to 6A. It has following functions: Voltage self-adaptation, pulse-width limitation, Overdrive trigger, 256-level intensity adjustment and the adjustment for each channel is independent, Simultaneous communication of multiple channels. Normal trigger, High intensity trigger, Programmable trigger, Trigger pulse width settable, Automatically detects for lighting maximum current, Manually setting the lighting maximum output current, 100M Ethernet communication, RS232 communication.

1.2 Model Description



1.3 Model Classification

Module	Channels	Compatible Light
OPT-DPA6024E-2	2	200mA-6A 5-24V

1.4 Notice For Accessories Selection

1. Network Cable Selection:

Shipment standard network cable: six types, pure copper, 3 meters in length .Precautions for self-purchased network cable: Category 6 (including Category 6) and above, made of pure copper; length within 50 meters

2. Precautions for buying a switch or router: choose a well-known brand such as Netgear, the best rate is 100Mbps (Including 100Mbps) and above, The following models are available:

Router: Netgear WGR614 (150Mbps)

Switch: Netgear FS308 (8-port 100M)

1.5 Shipping Standard List

Item	Model specifications	Image	Quantity
Controller	DPA6024E-2		1
Power cord	National standard L=1.8m		1
Serial port cable	L=1.8m		1
Ethernet cable	Six types, pure copper, L=3m		1
Trigger connector	3.81-4PIN		1

1.6 Performance Parameters

Item	Parameter	Description
Input Voltage	AC100 - 240V 50/60Hz	
Input Current	4.2A/115VAC 2.1A/230VAC	
Lighting Mode	Continuous /Strobe	Set by working mode switch or DEMO software
Auto Sensing Of Light Rated Current	Connect 200mA-6A, 5-24V lighting	Set via DEMO software
Manual Setting Of Maximum Output Current	25mA-6A	Set via DEMO software
Intensity Control	256-level brightness adjustable	Adjusted via front panel encoder or DEMO software
Short-circuit Protection	Yes	If the controller is short-circuited, the short-circuit protection will turn off the corresponding channel with error message 'Er2' from display.
Over Current Protection	Yes	If over current occurs, the over current protection will turn off the corresponding channel with error message 'Er1' from display.
Overload Protection	Yes	If the channel output is greater than 160W,the overload protection will occur ,and the overload current protection will turn off the corresponding channel with error message 'Er6' from display.
Triggering	Level	
Normal trigger Mode	Intensity level: 0-255,adjustable	
High Intensity Trigger Mode	Output current settable,The maximum transient current is 20A	The output voltage is no more than 48V.
Normal trigger Pulse Width Unit	1 μ s/10 μ s /1ms/100ms	Configurable by Control Software
Normal trigger Pulse Width	1 μ s - 30s	Configurable by front panel encoder or Control Software

Item	Parameter	Description
High intensity trigger Pulse Width Unit	1μs/10μs /1ms	Configurable by Control Software
High intensity trigger Pulse Width	1μs-999ms	Configurable by front panel encoder or Control Software
Programmable Trigger Mode	Support up to 64 programmable steps	Intensity, pulse and trigger source all can be set
Response Time	≤10μs	Refer to “2.4.3 Sequence Reference Diagram of Response Time ” section
Trigger Response Frequency	≤ 40KHz	
Communication	RS232/Ethernet	
Output Power	144W/CH	The total output power of DPA6024E-2 is no more than 288W.
Standby Power	18.8W	Input 220V
Hi-Pot Test	AC 1500V at 1Min	Leakage Current < 10mA
Insulation	DC 500V	Insulation Resistance >20M Ω
Operating Temperature	-5-50℃	
Dimensions (L×W×H)	91×132×170mm	Refer to “Dimension Diagram” section
Weight (Kg)	1.27 ± 0.2	

1.7 Error Code Description

Code	Description	Display	Solution
Er0	No LED connected	"Er0"	Connect an LED light
Er1	Overcurrent protection	"Er1"	Remove the error and restart
Er2	Short Circuit Protection	"Er2"	Remove the error and restart
Er3	Overvoltage protection	"Er3"	Remove the error and restart
Er4	Communication error between driver board and main board	"Er4"	Return to OPT for repair
Er6	Output overload	“Er6”	Set the output power lower than 160W,and reboot.

1.8 Working Mode Switch Setting

Mode	Working mode switch 1	Working mode switch 2
Continuous	ON	ON
Auto sensing of light rated current once	ON	OFF
Normal trigger	OFF	ON
High intensity trigger	OFF	OFF

Notes:

1. DPA6024E controller can connect 5- 24V LED lighting.
2. When manually setting the maximum output current, never connect the controller to the lighting with current lower than the maximum output current. Otherwise, it may damage the lighting because of current mismatch.
3. Automatically detect for load current once mode: When turning to this mode, the controller will re-detect the load maximum current once.

2. Operation Instructions

2.1 Panel Instructions

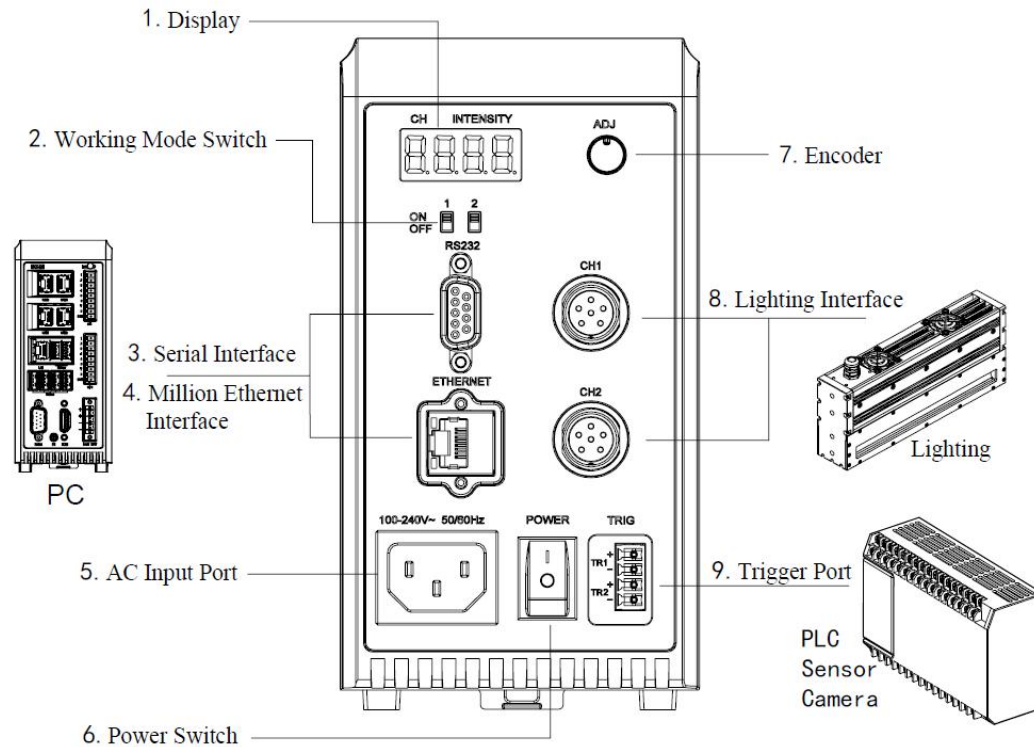
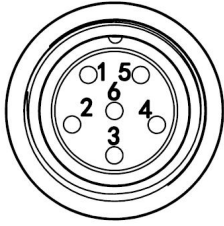


Figure 2.1

No.	Interface	Description
1	Display	The first digit from the left is the current operation channel, and the last three digits are the corresponding values of the current operation
2	Working Mode Switch	Function switch ,refer to 1.8“ Mode Switch Setting” section
3	Serial Interface	Communicate with PC equipment via RS232
4	Million Ethernet Interface	Communicate with PC equipment via Ethernet
5	AC Input Port	Input voltage : AC100-240V 50/60Hz 4.2A/115VAC 2.1A/230VAC
6	Power Switch	Turn on or turn off the power of controller
7	Encoder	Adjust the value of each channel .The bit of display blinking means this bit is selected when the encoder is pressed down. Press the encoder again, the next bit of display will be selected. The value of encoder will increase with clockwise rotation. Similarly, the value of encoder will decrease with counter clockwise rotation.

No.	Interface	Description
8	Lighting Interface	There are two channels for lighting output, each channel can be controlled independently.
9	Trigger Port	Connect external trigger signal to work with frequency synchronously, the trigger pulse width can be set

2.2 Light Connector

	Pin	Description	Remark
	1	Light+	Positive pole of light source output
	2	Light-	Negative pole of light source output
	3	Fan+	Positive pole of light source fan
	4	Fan-	Negative pole of light source fan
	5	Res	In the automatically detect for load maximum current mode the resistance can identify the light source's rated current .For example, when the resistance is 1K Ω , the output current will be 1A.
	6	Res	

2.3 Connection Steps

Step1: Connect the lighting to controller (See Figure 2.1).

Step2: If the external trigger control is necessary, connect the external trigger source to the trigger port of controller.

Step3: Connect power source (AC100-240V) and turn on the power source. If the display shining index the power is on.

If once needs to adjust the intensity through software, please connect the controller with power off to PC device via RS232 or Ethernet. Run our Control Software or one's own program (i.e., SDK also available). The parameters for channels can still be overridden manually via front panel while communicating through serial port or Ethernet (i.e., both host computer and the controller panel can be individually adjusted).

2.4 Brightness Setting

1.Manual Mode

Turn both the switch 1 and switch 2 on the front panel to “ON” position to enter the constant lighting mode. Push the encoder. The first digit of the display will blink. Now one can choose the channel(s). Clock-wise turning the encoder will increase the index of the channel whereas counter clock-wise turning will decrease the index. The remaining digits indicate the intensity level (0-255) in decimal form (i.e., for the highest intensity, set the 2nd digit= 2, the 3rd digit= 5, the 4th digit=5). Push the encoder again to store the value and the display will stop blinking. Repeat above steps for the remaining channels.

2.DEMO software setting method

See “3.Software Operation Instructions” section.

2.5 Trigger Function

There are three trigger modes in the controller, including Normal trigger mode, High intensity trigger mode and programmable trigger mode and four trigger polarities, including positive follow trigger mode, negative follow trigger mode, rising edge trigger and falling edge trigger.(see Table 2.1)By default, it is rising edge trigger.

Table 2.1

Trigger Mode	Trigger Polarity
Normal trigger Mode	Rising Edge Trigger
	Falling Edge Trigger
	Positive follow trigger mode
	Negative follow trigger mode
High Intensity Trigger Mode	Rising Edge Trigger
	Falling Edge Trigger
	Positive follow trigger mode
	Negative follow trigger mode
Programmable Trigger Mode	Rising Edge Trigger
	Falling Edge Trigger

2.5.1 Trigger Mode Description

1. Normal trigger Mode

The channel corresponding to the trigger port of controller will output a fixed signal which consists of intensity level and trigger pulse width. The range of the adjustable intensity level is 0-255. The trigger pulse width can be set from 1us to 30S. See “1.8 Working Mode Switch Setting” section for more detail operation instruction.

2. High Intensity Trigger Mode

The channel corresponding to the trigger port of controller will output a current base on the continuous mode output current be set or detected, which multiplies the brightening current percentage. The trigger pulse width can be set from 1us to 999ms, but when the high intensity trigger output duty cycle limit switch is opened the output high intensity trigger pulse width is equal to high intensity trigger pulse width multiplies the duty cycle of the high intensity trigger output.

3. Programmable Trigger Mode

A trigger source can trigger multichannel of controller to output corresponding signal at the same time. The output signal of each channel which consists of intensity level and trigger pulse width can be set to different values in each trigger. The range of the adjustable intensity level is 0-255. If you switch to programmable trigger mode from Normal trigger mode, the pulse width can be set from 0us to 30s. If you switch to programmable trigger mode from High Intensity Trigger Mode, the pulse width can be set from 0us to 999ms. In addition, the trigger source signal can be selected from 1 to 2. See “3.2 Programmable Trigger Software Operating Instructions” section for more detail operation instruction.

For example, a product testing situation needs camera to take four photos. The output

parameters of the light source are not the same in each photograph that is shown in Table 2.2 below, and the corresponding sequence diagram is shown in Figure 2.2 below. If you control with the traditional trigger mode, for each photograph, it is necessary to reset the brightness level and trigger pulse width for light source of each channel which will result in increasing more response time for taking photos. But in programmable trigger mode of the same situation, we can divide the four photograph operation into four steps. The output parameters of light source for each channel in each step are set from the Table 2.2, we only need one trigger source to control the output of four channels. The controller will perform the four steps recursively according to the preset parameters table of the light source output. Because of the light source output parameters required for each step are set up in advance, the controller save the time required to set parameters which improves the response time for taking photos.

Table 2.2

Step	Trigger Source	Intensity Level		Pulse Width	
		CH1	CH2	CH1	CH2
1	1	250	50	1	1
2	2	200	150	2	2
3	1	150	200	3	1
4	2	50	250	4	2

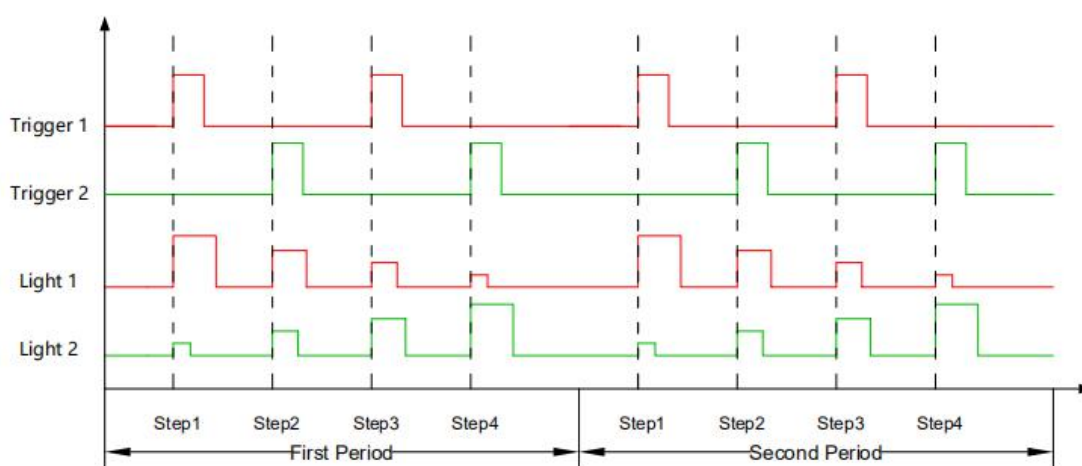


Figure 2.2

Notes:

1. The mark “Trigger” is the trigger signal, the mark “Light” is the light output signal.
2. The figure above is a sequence diagram of four processes. The trigger source is Trigger1, Trigger 2, Trigger1, Trigger 2 in turn.

2.5.2 Trigger Polarity Description

1. Rising Edge Trigger: The controller will output a pulse when a rising edge trigger signal arrives, and the output pulse width can be set by controller.

2. Falling Edge Trigger: The controller will output a pulse when a falling edge trigger signal arrives, and the output pulse width can be set by controller.

3. Positive follow trigger mode: The controller will output a pulse when the trigger signal is high voltage level, and the output pulse width is the same as the high voltage level of trigger signal.

4. Negative follow trigger mode: The controller will output a pulse when the trigger signal is low voltage level, and the output pulse width is the same as the low voltage level of trigger signal.

2.5.3 Sequence Reference Diagram of Response Time

1. Rising Edge Trigger

Illuminating time is equal to the set trigger pulse width. Trigger pulse width set via DEMO or adjustment key. Refer to Figure 2.3.

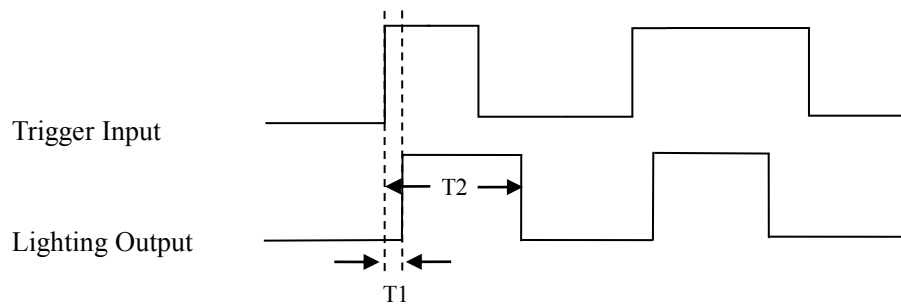


Figure 2.3

2. Falling Edge Trigger

Illuminating time is equal to the set trigger pulse width. Trigger pulse width set via DEMO or adjustment key. Refer to Figure 2.4.

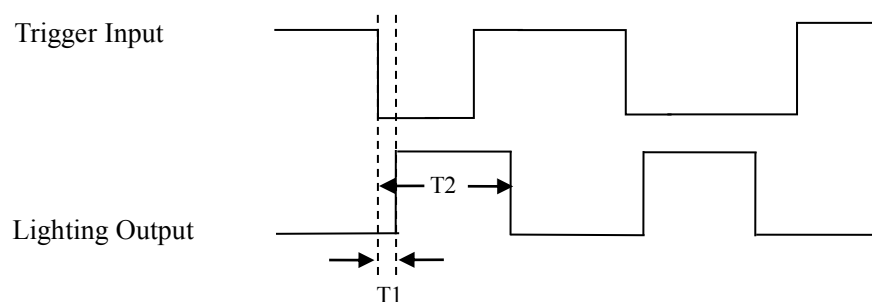


Figure 2.4

3. Positive follow trigger mode

When the trigger signal is high level, illuminating time is equal to pulse width of high level. Refer to Figure 2.5.

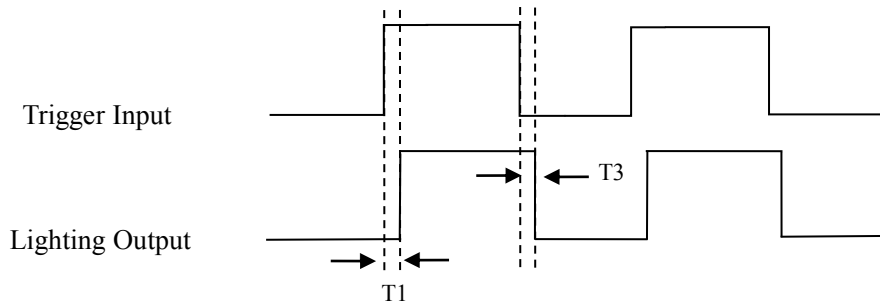


Figure 2.5

4. Negative follow trigger mode

When trigger signal is low level voltage, illuminating time is equal to low level pulse width. Refer to Figure 2.6.

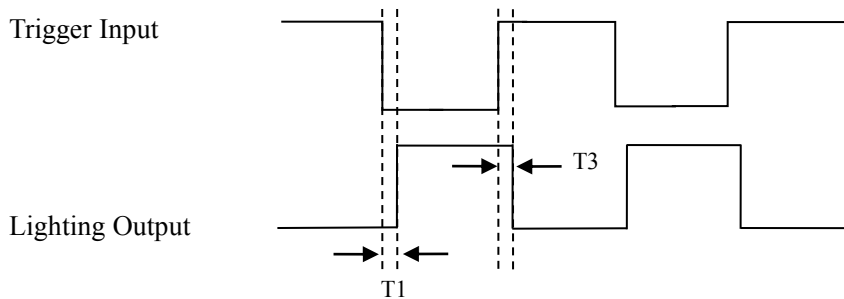


Figure 2.6

Notes:

1. T1 is the delay time of turning on light; T2 is the trigger pulse width. T3 is the delay time of turning off light;
2. The Normal trigger: $T1 \leq 10\mu s$; $T3 \leq 10\mu s$; T2 can be set from 1us to 30s.
3. The High intensity trigger: $T1 \leq 10\mu s$; $T3 \leq 10\mu s$; T2 can be set from 1us to 999ms.

2.5.4 Trigger Wiring Diagram Reference

There are 2 trigger input ports, see Figure 2.7. Unidirectional optical coupler isolation is built in. For voltage 0-2V, the photo-coupler is not conductive and it becomes conductive when the voltage is within 5-24V.

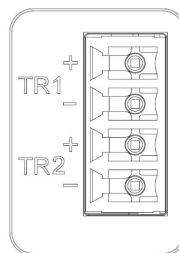
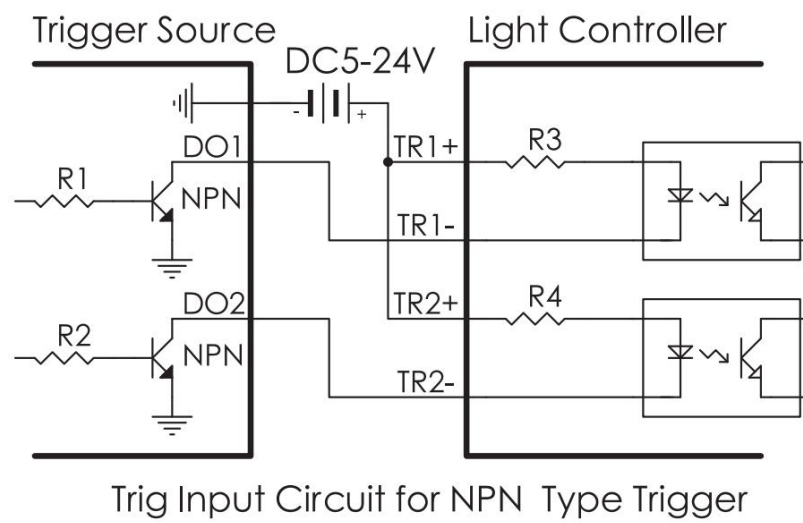


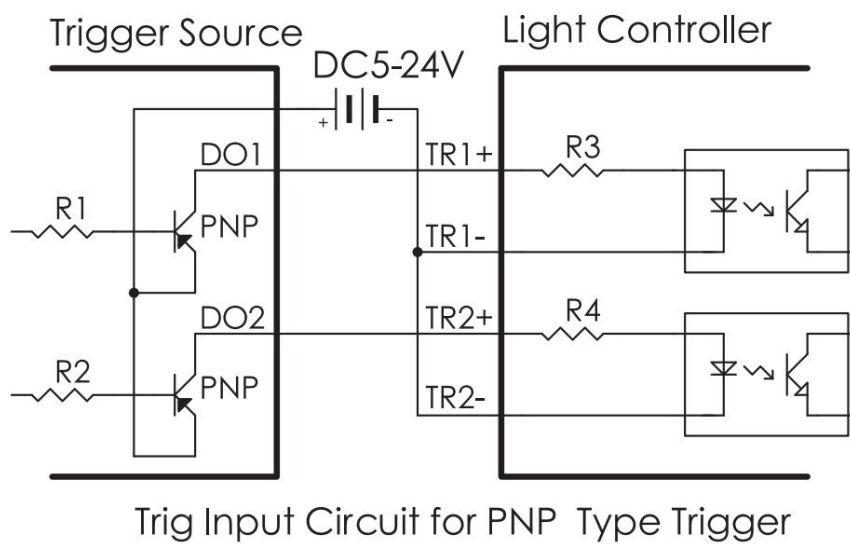
Figure 2.7

The two general wiring diagrams of trigger as shown in diagram below.

1. NPN Type Trigger



2.PNP Type Trigger



3. Software Operation Instructions

3.1 Software Function Description

No.	Function	Description	The Corresponding Interface
1	Set Intensity	Function: Set the output brightness level of the light source Channel: channel for which the brightness level needs to be set (parameter 0 represents all channels) Parameter: 0-255	Short / long command function
2	Read Intensity	Function: read the output brightness level of the light source Channel: channel that needs brightness level reading Parameter:None	Short command function
3	Turn On Channel(s)	Function: Turn on the corresponding channel Channel: channel that needs to be opened (parameter 0 means all channels) Parameter:None	Short / long command function
4	Turn Off Channel(s)	Function: Turn off the corresponding channel Channel: channel that needs to be closed (parameter 0 represents all channels) Parameter:None	Short / long command function
5	Set Normal Trigger Time Unit	Function: set the time unit of normal trigger pulse width Channel: channel for which the time units need to be set (parameter 0 represents all channels) Parameter: 0: 1 μ s 1: 10 μ s 2: 1ms 3: 100ms	Short command function
6	Read Normal Trigger Time Unit	Function: read the time unit of normal trigger Channel: channel that needs to read the time unit Parameter:None	Short command function
7	Set Normal Trigger Width	Function: set the output pulse width of normal trigger Channel: channel for which the pulse width trigger needs to be set (parameter 0 represents all channels) Parameter: 1 - 999	Short / long command function

No.	Function	Description	The Corresponding Interface
8	Read Normal Trigger Width	Function: read the output pulse width of normal triggers Channel: channel that needs pulse width trigger reading Parameter:None	Short command function
9	Set High Intensity Trigger Width	Function: Set trigger width of the High Intensity Trigger Mode Channel: The channel that need to be set High intensity trigger width (0 means total channels) Parameter:1 - 999	Short/Long Command Function
10	Read High Intensity trigger Width	Function: Read trigger width of the High Intensity Trigger Mode Channel: The channel that need to be read High intensity trigger width Parameter:None	Short Command Function
11	Set Maximum Current	Function: Set maximum current for corresponding channel Channel: The channel that need to be set maximum current (0 means total channels) Parameter:1-240(unit 25mA)	Short/Long Command Function
12	Read Maximum Current	Function: Read maximum current for corresponding channel Channel: The channel that need to be read maximum current Parameter:None	Short Command Function
13	Read Channel State	Function: Get channel state for corresponding channel Channel: The channel that need to be get channel state Parameter:None	Short Command Function
14	Software Trigger	Function: each time a command is sent, the time the light source is on is the set value. Channel: channel that needs software trigger (parameter 0 means all channels) Parameter: 1-3000(unit 10ms)	Short/Long Command Function
15	Set Trigger Delay	Function: Set trigger delay for corresponding channel Channel: The channel that need to be set trigger delay (0 means total channels) Parameter:0-65000	Short Command Function

No.	Function	Description	The Corresponding Interface
16	Read Trigger Delay	Function: Read trigger delay for corresponding channel Channel: The channel that need to be read trigger delay Parameter:None	Short Command Function
17	Set High Intensity Trigger Mode Time Unit	Function: read the time unit of high intensity trigger mode Channel:The channel that need to be set High intensity trigger width (0 means total channels) Parameter:0: 1 μ s 1: 10 μ s 2: 1ms	Short Command Function
18	Read High Intensity Trigger Mode Time Uni	Function: read the time unit of high intensity trigger mode Channel: channel that needs to read the time unit Parameter::None	Short/Long Command Function
19	Set Trigger Delay Time Unit	Function: Set trigger delay time unit Channel: The channel that need to be set trigger delay time unit (0 means total channels) Parameter: 0: 1 μ s 1: 10 μ s 2: 1ms	Short Command Function
20	Read Trigger Delay Time Unit	Function: Read trigger delay time unit Channel: The channel that need to be read trigger delay time unit Parameter:None	Short Command Function
21	Set Brightening Current Percentage	Function: Set brightening current percentage Channel: The channel that need to be set brightening current percentage (0 means total channels) Parameter:101-2000(%)	Short Command Function
22	Read Brightening Current Percentage	Function: Read brightening current percentage Channel: The channel that need to be read brightening current percentage (0 means total channels) Parameter:None	Short Command Function

No.	Function	Description	The Corresponding Interface
23	Read Property	Function: Read corresponding property for controller Channel:None Parameter: 1:Read Model 2:Read Firmware Version	Advance Settings Command
24	Read Serial Number	Function: Read serial number for controller Channel:None Parameter:None	Advance Settings Command
25	Read IP Config	Function: Read IP configuration which will return message with IP address, sub-net mask and default gateway. Channel:None Parameter:None	Advance Settings Command
26	Set Trigger Polarity	Function: Set trigger polarity for trigger mode Channel: 0-2 Parameter:0:Positive follow trigger mode 1:Negative follow trigger mode 2:Falling edge trigger 3:Rising edge trigger	Advance Settings Command
27	Read Trigger Polarity	Function: Read trigger method for trigger mode Channel: the corresponding channel that need trigger polarity reading Parameter:None	Advance Settings Command
28	Enable CheckSum	Function: Enable checksum Channel:None Parameter: 0:Disable 1:Enable	Advance Settings Command
29	Enable Respond	Function: Enable return value Channel:None Parameter: 0:Disable 1:Enable.	Advance Settings Command
30	Set Load Detection Mode	Function: Set load detection mode Channel: The corresponding channel that need to set load detection mode(0 means total channels) Parameter:0:Detect Automatically 1:Set Manually	Advance Settings Command

No.	Function	Description	The Corresponding Interface
31	Enable Power Off Backup	Function: Enable power off backup, the data will be saved when the power is turned off. Channel:None Parameter: 0:Disable 1:Enable	Advance Settings Command
32	Enable DHCP	Function: Enable DHCP Channel:None Parameter: 0:Disable 1:Enable	Advance Settings Command
33	Auto Sensing Of Light Rated Current Once	Function: Auto Sensing Of Light Rated Current Once Channel:None Parameter:None	Advance Settings Command
34	Set Working Mode	Function: Set working mode Channel:None Parameter: 0:Continuous Mode 1:Normal trigger mode 2:High Intensity Trigger Mode 3:Set the working mode on panel	Advance Settings Command
35	Read Working Mode	Function: Read working mode Channel:None Parameter:None	Advance Settings Command
36	Set Keepalive Parameters	Function: Set keep-alive parameter Channel:None Parameter0:KeepAlive_time Parameter1:KeepAlive_interval. Parameter2:KeepAlive_probes.	Advance Settings Command
37	Enable Keepalive	Function: Enable keep-alive Channel:None Parameter: 0:Disable 1:Enable	Advance Settings Command
38	Read Channels	Function: Read channel amount Channel:None Parameter:None	Advance Settings Command
39	Read Keepalive Switch States	Function: Read the keep-alive switch state for Ethernet communication Channel:None Parameter:None	Advance Settings Command
40	Read Continuous	Function: Read continuous keep-alive time for Ethernet communication	Advance Settings Command

No.	Function	Description	The Corresponding Interface
	Keepalive Time	Channel:None Parameter:None	
41	Read Delivery Interval Time Of Prop Packet	Function: Read delivery interval time of Probe Packet for Ethernet communication Channel:None Parameter:None	Advance Settings Command
42	Read Delivery Time Of Prop Packet	Function: Read delivery times of Probe Packet for Ethernet communication Channel:None Parameter:None	Advance Settings Command
43	Read Output Board Version	Function: Read the output board vision of controller Channel:None Parameter:None	Advance Settings Command
44	Read Load Detection Mode	Function: Read load detection mode of controller Channel:The corresponding channel for reading load detection mode Parameter:None	Advance Settings Command
45	Set Boot State	Function: Set boot protection for corresponding channel output Channel: The corresponding channel for setting boot protection (0 means total channels). Parameter: 0:Set general light 1:Set general close	Advance Settings Command
46	Read Module Boot State	Function: Read model boot state for corresponding channel Channel: The corresponding channel for reading boot protection. Parameter:None	Advance Settings Command
47	Set High Intensity Trigger Output Duty Cycle Limit Switch State	Function: Set the status of the high intensity trigger output duty cycle limit switch Channel: The corresponding channel for setting high intensity trigger output duty cycle limit switch. Parameter:0:Close 1:Open	Advance Settings Command
48	Read High Intensity Trigger Output Duty	Function: Read the status of the high intensity trigger output duty cycle limit switch Channel: The corresponding channel for reading high intensity trigger output duty cycle	Advance Settings Command

No.	Function	Description	The Corresponding Interface
	Cycle Limit Switch State	limit switch. Parameter:None	
49	Set High Intensity Trigger Output Duty Cycle	Function: Set the duty cycle of the high intensity trigger output Channel: The corresponding channel for setting the duty cycle of the high intensity trigger output. Parameter: 1-99(%)	Advance Settings Command
50	Read High Intensity Trigger Output Duty Cycle	Function: Read the duty cycle of the high intensity trigger output Channel: The corresponding channel for reading the duty cycle of the high intensity trigger output. Parameter:None	Advance Settings Command
51	Set Voltage Difference Limit Switch State	Function: Set the status of voltage difference limit switch state Channel: The corresponding channel for setting the voltage difference limit switch state. Parameter: 0:Close 1:Open	Advance Settings Command
52	Read Set Voltage Difference Limit Switch State	Function: Read the status of voltage difference limit switch state Channel: The corresponding channel for reading voltage difference limit switch state. Parameter:None	Advance Settings Command

3.2 Programmable Trigger Software Operating Instructions

No.	Function	Operation Instruction	The Corresponding Interface
1	Read Step Count	Click the "Programmable Trigger Setting" button, select the corresponding channel group, select "Read Step Count" in the function option, and then click the "Apply" button.	Programmable Trigger Function

No.	Function	Operation Instruction	The Corresponding Interface
2	Set Trigger Mode	Click the “Programmable Trigger Setting” button, select the corresponding channel group, and select “Set Trigger Mode” in the function option. Then, select corresponding trigger mode in the parameter and click “Apply” button; the parameter include two trigger modes: General Trigger Mode and Programmable Trigger Mode.	Programmable Trigger Function
3	Read Trigger Mode	Click the “Programmable Trigger Setting” button, select the corresponding channel group, select “Read Trigger Mode” in the function option and then click “Apply” button. Status bar will return the corresponding trigger mode.	Programmable Trigger Function
4	Set Current Step Index	Click the “Programmable Trigger Setting” button, select corresponding channel group, select “Set Current Step Index” in the function option, write the step number parameter in the parameter options (the range is greater than or equal to 1 and less than or equal to the total number of steps in the programmable trigger table), and then click the "Apply" button.	Programmable Trigger Function
5	Read Current Step Index	Click the “Programmable Trigger Setting”, select corresponding channel group, select “Read Current Step Index” in the function option, and then click the “Apply” button.	Programmable Trigger Function
6	Reset Current Step Index	Click the "Programmable Trigger Setting" button, select the corresponding channel group, select "Reset Current Step Index" in the function option, and then click the "Apply" button.	Programmable Trigger Function
7	Add Programmable Trigger Step	Click the "Programmable Trigger Setting" button, select the corresponding channel group, select the position where the programmable trigger step needs to be inserted, click the "+" button on the interface, and insert a programmable trigger step in the upper line of the selected programmable trigger option, and then set the trigger source and trigger pulse width parameter.	Programmable Trigger Function

No.	Function	Operation Instruction	The Corresponding Interface
8	Delete Programmable Trigger Step	Click the "Programmable Trigger Setting" button, select the corresponding channel group, select the position where the programmable trigger step needs to be deleted, and click the "-" button on the interface to delete the selected programmable trigger step.	Programmable Trigger Function
9	Write Programmable Trigger Table	Click the "Programmable Trigger Setting" button, select the corresponding channel group, set the programmable trigger table to be written, and click the "write" button.	Programmable Trigger Function
10	Read Programmable Trigger Table	Click the "Programmable Trigger Setting" button, select the corresponding channel group, and then click the "Read" button.	Programmable Trigger Function
11	Import Programmable Trigger Table	Click the "Programmable Trigger Setting" button, select the corresponding channel group, click the "Import" button, select the file location where the programmable trigger table needs to be uploaded, and click "Open" to import the selected programmable trigger table.	Programmable Trigger Function
12	Export Programmable Trigger Table	Click the "Programmable Trigger Setting" button, select the corresponding channel group, click the "Export" button, select the file location where the programmable trigger table needs to be saved, modify the name of the programmable trigger table, and click "Save".	Programmable Trigger Function
13	Clear Status Bar	Click the "Programmable Trigger Setting" button, select the corresponding channel group, and then click the "Clear" button.	Programmable Trigger Function

Note:

For specific software operation instructions, please refer to the "V3.4 Controller DEMO Operation Instructions" document

3.3 Programmable Manual For Consumer

To be convenient for customer to secondary development, we offer the Software Development Kit (SDK) for this lighting controller. Please download the Control Software named "OPT Controller Control Software and SDK "from the OPT official website

4. Installation Instructions



No.	Interface	Description
1	Mounting screw hole	Screw hole mounting
2	DIN rail slot	Standard DIN rail mounting

4.1 DIN Rail Mounting Way

1. Installation (Figure 4.1): (1) Lock the controller back panel DIN rail track to position 1 rail.
(2) Push down controller toward position 2.

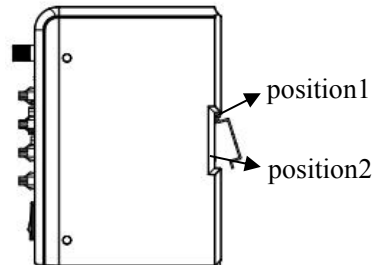


Figure 4.1 Mounting steps

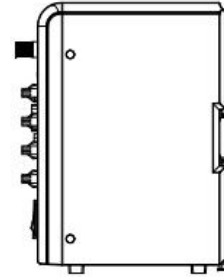


Figure 4.2 Removal steps

2. Uninstallation (Figure 4.3): (1) Pull down the controller.
(2) Push up toward position1.

4.2 Screw Installation

1. Installation (Figure 4.3):
 - (1) Secure back-plate against controller.
 - (2) Tighten the screws.
 - (3) Tighten the back-plate to fixtures or stations.

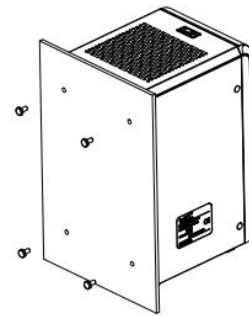


Figure 4.3 Screws Hole Mounting

4.3 Installation Size

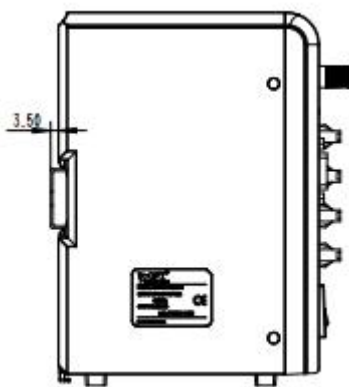


Figure 4.4 DIN Rail Mounting Dimensions

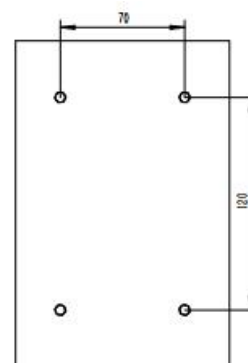


Figure 4.5 Screw Hole Mounting Dimensions

5. Dimension Diagram

Mechanical Parameter

OPT-DPA6024E-2

