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OPT-DPA6024E

Lighting Controller 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 make sure good ground for the controller to avoid electric shock.
	Do not stare directly into the light given out from the LED since it do harm to your eyes. If a matched object is used, please take care not to let reflected light to enter your eyes.

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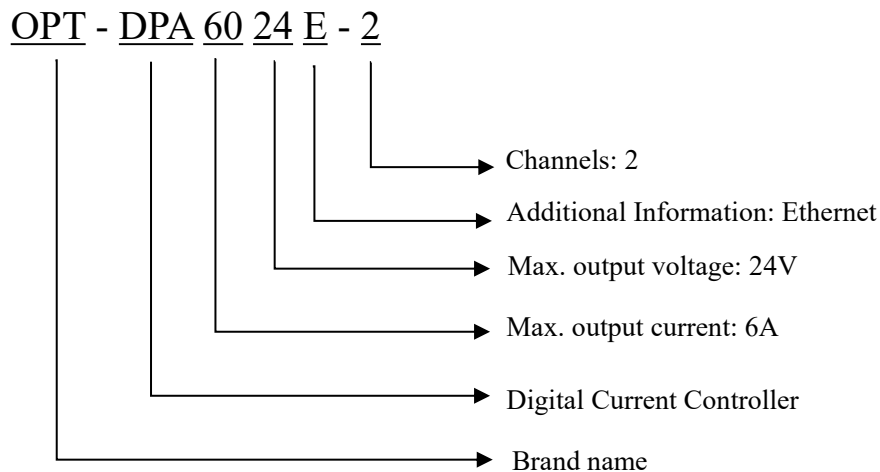
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1. Product Introduction

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 100mA 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 Selection Guidance



1.3 Model Table

Module	Channels	Compatible Light
OPT-DPA6024E-2	2	100mA~6A 5~24V

1.4 Notice for part selection

1. Network line selection:

Shipment marking network: six types, pure copper, 3 meters in length

Notice for the purchase of net line: six categories (including six types) above, pure copper material; length within 50 meters

2. Notice for buying switch or router: select a well-known brand, such as the United States network, the best rate of 100Mbps, (including 100Mbps)

The following models are available for selection:

Routers: American Web Parts (NETGEAR) WGR614 (150Mbps)

Switch: American network component (NETGEAR) FS308 (8 port 100M)

1.5 List of items

Item	Mode	Picture	amount
Controller	DPA6024E-2		1
Power cable	National standard L=1.8m		1
Serial port cable	L=1.8m		1
Ethernet cable	Six types, pure copper, L=3m		1
Trigger Terminal	3.81-4PIN		1

1.6 Specification

Item	Parameter	Description
Input Voltage	AC100~240V 50/60Hz	
Input Current	4.2A/115VAC 2.1A/2300VAC	
Lighting Mode	Continuous /Strobe	Configurable by front panel encoder or Control Software
Automatically Detect for Load Maximum Current	Connect 100mA~6A, 5~24V lighting	Select the function of “automatically detect for load maximum current” by Control Software
Manually set the maximum output current	100mA~6A	Select the function of “manually set the maximum output current” by Control Software
Adjustable Intensity Level	256	Adjusted via front panel encoder or Control 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.
Normal trigger Mode	Intensity level: 0~255,adjustable	
High Intensity Trigger Mode	The maximum transient current can set from 101% to 2000% of the continuous output current	The maximum transient current is 20A
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	1 μ s/10 μ s /1ms	Configurable by Control Software
High intensity trigger Pulse Width	1 μ s~999ms	Configurable by front panel encoder or Control Software
Programmable Trigger Mode	Yes	Intensity, pulse and trigger source all can be set
Response Time	$\leq 10\mu$ s	Refer to “2.4.3 Sequence Reference Diagram of Response Time ” section
Maximum Trigger Response Frequency	40KHz	
Communication	RS232/Ethernet	
Output Power	144W/CH	The total output power of DPA6024E-2 is no more than 288W.
The Maximum Transient Current	20A/CH	The output voltage is no more than 48V.
Standby Power	5W	Input Voltage: AC 220V
Withstand Voltage Test	AC 1500V at 1Min	Leakage Current < 10mA
Insulation Resistance	DC 500V	Insulation Resistance >20M Ω
Working Temperature	-5~50 $^{\circ}$ C	
Dimension Size(mm)	91*132*170mm	Refer to “Dimension Diagram” section
Weight(Kg)	1.27 $\pm$ 0.2	

1.7 Error Code

Code	Description	Display	Solution
Er0	No LED connected	The display will show “Er0” mark.	Connect an LED light
Er1	Overcurrent protection	The display will show “Er1” mark.	Remove ERR and reboot
Er2	Short-circuit protection	The display will show “Er2” mark.	Remove ERR and reboot
Er3	Overvoltage protection	The display will show “Er3” mark.	Remove ERR and reboot
Er4	Driver hardware communication ERR	The display will show “Er4” mark.	Return to OPT for repair
Er5	Display hardware communication ERR	The display will show “Er5” mark.	Return to OPT for repair

Code	Description	Display	Solution
Er6	Output overload	The display will show 'Er6' mark	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
Automatically detect for load current once	ON	OFF
Normal trigger mode	OFF	ON
High intensity trigger mode	OFF	OFF

Notes:

1. DPA6024E controller can connect 5~ 24V 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

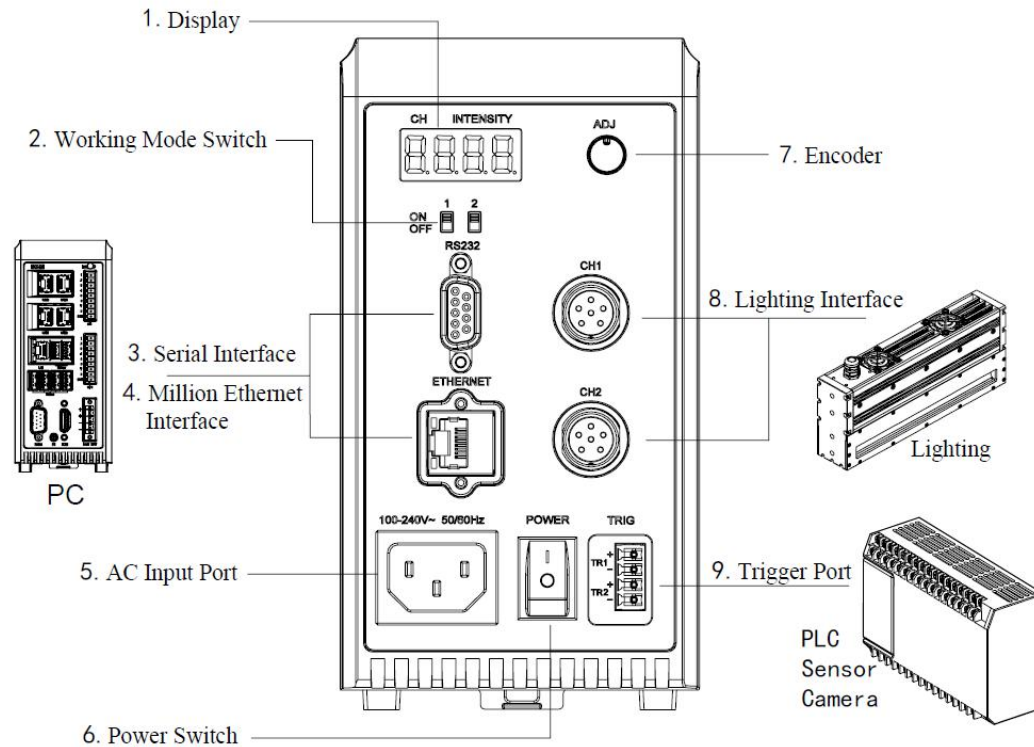


Figure 2.1

Index	Interface	Description
1	Display	From left, the first bit is the channel for present operation, and the last three bits is the corresponding value of present 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/2300VAC
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

Index	Interface	Description
		rotation. Similarly, the value of encoder will decrease with counter clockwise rotation.
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 Connecting

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).

2.3 Setting Intensity

1. Manually setting: Turn both the switch 1 and switch 2 on the front panel to “ON” position to enter the general 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. Setting via software: See “3.Control Software Operation Instruction” section.

2.4 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

2.4.1 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 pulses 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 1us to 30s. If you switch to programmable trigger mode from High Intensity Trigger Mode, the pulse width can be set from 1us to 999ms. In addition, the trigger source signal can be selected from 1 to 2. See “3. Control Software Operation 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	
		Ch_1	Ch_2	Ch_1	Ch_2
1	1	250	50	1	1
2	2	200	150	2	2
3	1	150	200	3	1
4	2	50	250	4	2

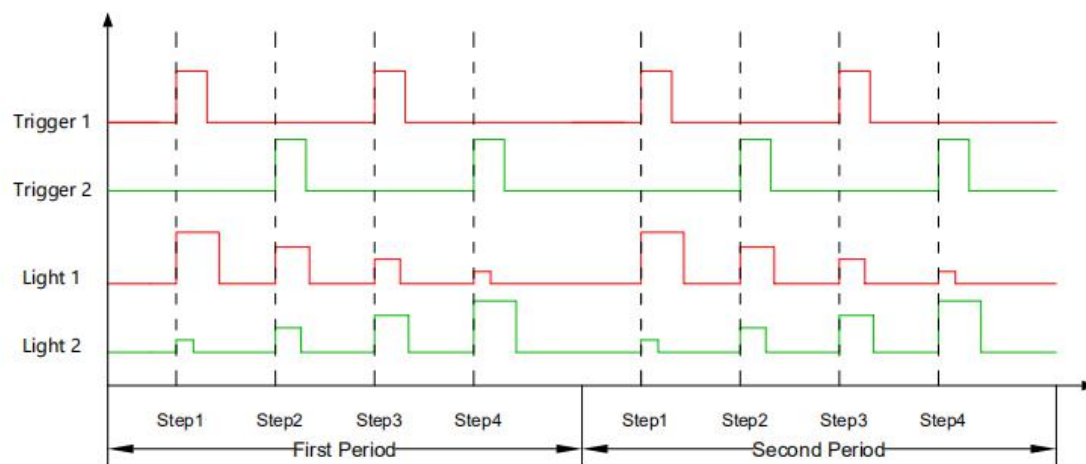


Figure 2.2

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.

2.4.2 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.

2.4.3 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.

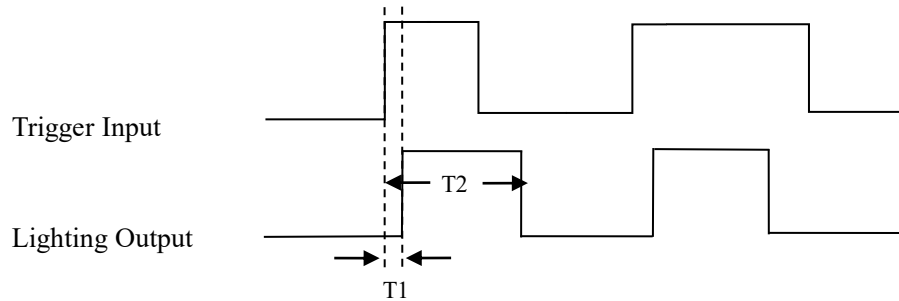


Figure 2.3

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.

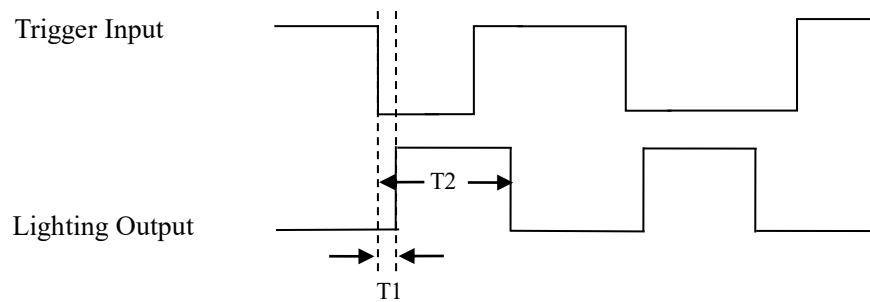


Figure 2.4

3. Positive follow trigger mode

When the trigger signal is high level, illuminating time is equal to pulse width of high level. Refer to Chart 1.3 Figure 2.5

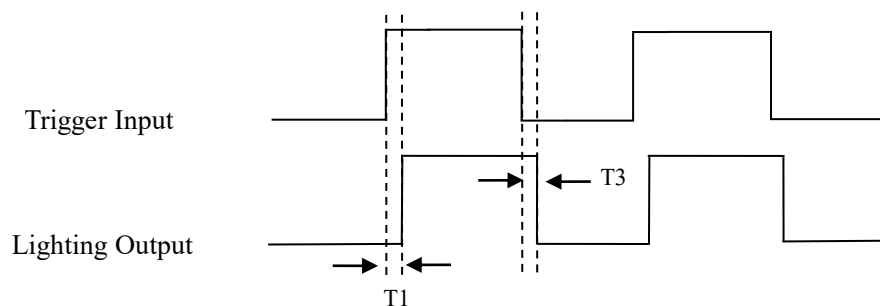


Figure 2.5

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.

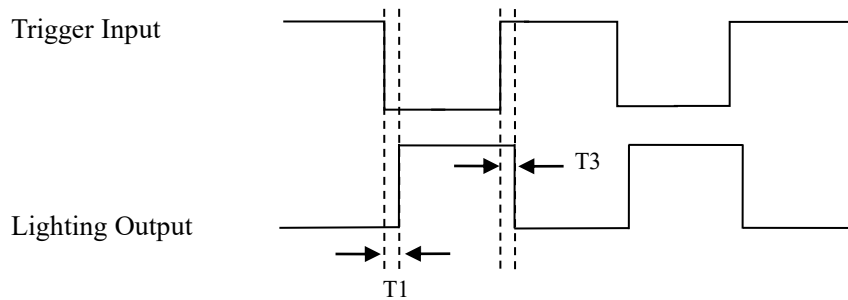


Figure 2.6

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 for DPA6024E: $T1 \leq 10\mu s$; $T3 \leq 10\mu s$; T2 can be set from 1us to 30S.
3. The High intensity trigger for DPA6024E: $T1 \leq 10\mu s$; $T3 \leq 10\mu s$; T2 can be set from 1us to 999ms.

2.4.4 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.

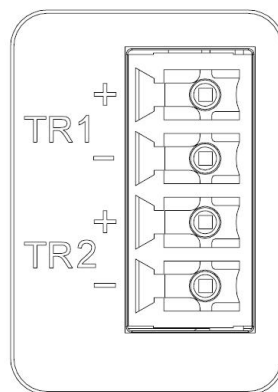
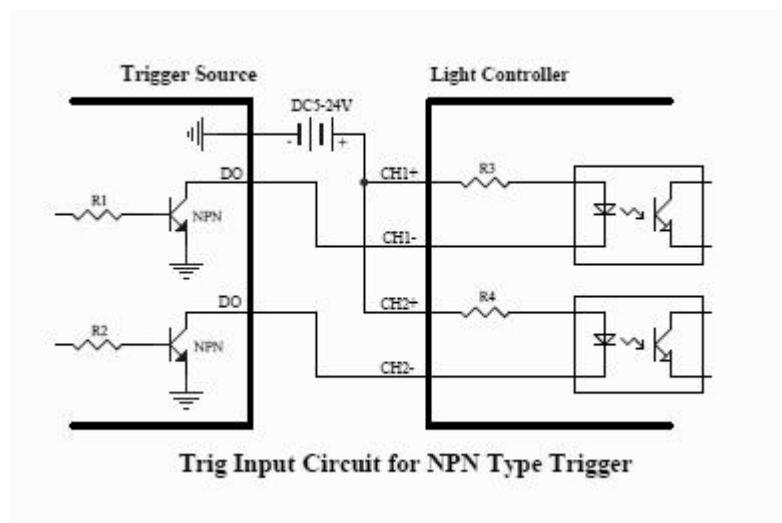


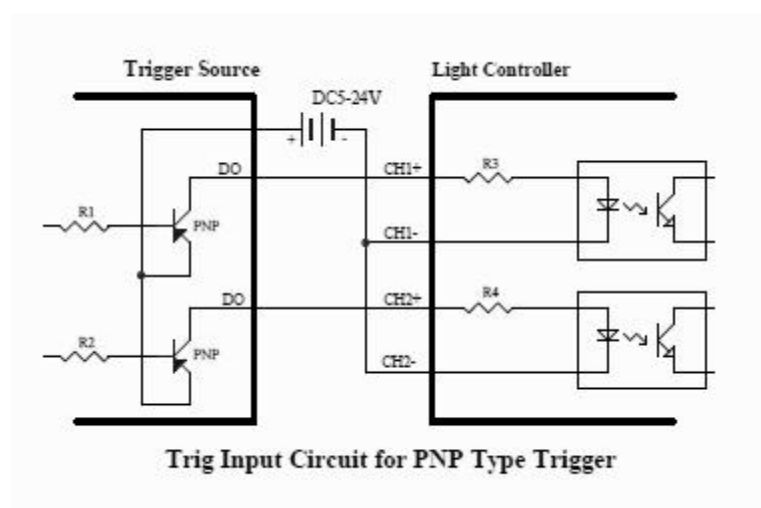
Figure 2.7

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

1. NPN Type Trigger



2. PNP Type Trigger



3. Control Software Operation Instructions

3.1 Command Function Table

Index	Function	Description	The Corresponding Interface
1	Set Intensity	Function: Set intensity in corresponding channel Channel: Controller output channel(0 means total channels)	Short/Long Command Function

Index	Function	Description	The Corresponding Interface
		Parameter: 0~255	
2	Read Intensity	Function: Read intensity in corresponding channel Channel: The channel that need to be read intensity value Parameter: No this option	Short Command Function
3	Turn on Channel(s)	Function: Turn on corresponding channel Channel: The channel that need to be turned on(0 means total channels) Parameter: No this option	Short/Long Command Function
4	Turn Off channel(s)	Function: Turn off corresponding channel Channel: The channel that need to be turned off(0 means total channels) Parameter: No this option	Short/Long Command Function
5	Set Normal Trigger Time Unit	Function: Set normal trigger width time unit Channel: The channel that need to be set normal trigger time unit (0 means total channels) Parameter: 0~3	Short Command Function
6	Read Normal Trigger Time Unit	Function: Read normal trigger width time unit Channel: The channel that need to be read normal trigger time unit Parameter: No this option	Short Command Function
7	Set Normal Trigger Width	Function: Set trigger width of the Normal trigger mode Channel: The channel that need to be set normal trigger width(0 means total channels) Parameter: 1~999	Short/Long Command Function
8	Read Normal Trigger Width	Function: Read trigger width of the normal trigger mode Channel: The channel that need to be read normal trigger width Parameter: No this option	Short Command Function
9	Set High Intensity Trigger Time Unit	Function: Set high intensity trigger width time unit Channel: The channel that need to be set high intensity trigger time unit (0 means total channels) Parameter: 0~2	Short Command Function
10	Read High Intensity	Function: Read high intensity trigger width time unit	Short Command Function

Index	Function	Description	The Corresponding Interface
	Trigger Time Unit	Channel: The channel that need to be read high intensity trigger time unit Parameter: 0~2	
11	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
12	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: No this option	Short Command Function
13	Set Max Current	Function: Set maximum current for corresponding channel Channel: The channel that need to be set maximum current (0 means total channels) Parameter: 1~200(unit 10mA)	Short/Long Command Function
14	Read Max Current	Function: Read maximum current for corresponding channel Channel: The channel that need to be read maximum current Parameter: No this option	Short Command Function
15	Get Channel State	Function: Get channel state for corresponding channel Channel: The channel that need to be get channel state Parameter: No this option	Short Command Function
16	Software Trigger	Function: Internal trigger, the corresponding channel will output a pulse width for a single click with Control Software Channel: The channel that need to be trigger by command (0 means total channels) Parameter: 1~3000(unit 10ms)	Short/Long Command Function
17	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: 0~2	Short Command Function

Index	Function	Description	The Corresponding Interface
18	Read Trigger Delay Time Unit	Function: Read trigger delay time unit Channel: The channel that need to be read trigger delay time unit (0 means total channels) Parameter: No this option	Short Command Function
19	Set trigger delay	Function: Set trigger delay Channel: The channel that need to be set trigger delay (0 means total channels) Parameter: 0~2	Short /Long Command Function
20	Read trigger delay	Function: Read trigger delay Channel: The channel that need to be read trigger delay (0 means total channels) Parameter: 0~3	Short /Long 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:No this option	Short Command Function
23	Read Property	Function: Read corresponding property for controller Channel: No this option Parameter: 1:Read model 2:Read firmware version	Advance Settings Command
24	Read Serial Number	Function: Read serial number for controller Channel: No this option Parameter: No this option	Advance Settings Command
25	Read IP Configuration	Function: Read IP configuration which will return message with IP address, sub-net mask and default gateway. Channel: No this option	Advance Settings Command

Index	Function	Description	The Corresponding Interface
		Parameter: No this option	
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: 1~2 Parameter: No this option	Advance Settings Command
28	Enable Checksum	Function: Enable checksum Channel: No this option Parameter: 0:disable 1:enable	Advance Settings Command
29	Enable Response	Function: Enable return value Channel: No this option Parameter: 0:disable 1: enable.	Advance Settings Command
30	Set Load Mode	Function: Set load detection mode Channel: 0~2 Parameter:0:Automatically detecting maximum output current mode 1: Manually setting the maximum output current mode	Advance Settings Command
31	Enable Power off Backup	Function: Enable power off backup, the data will be saved when the power is turned off. Channel: No this option Parameter: 0:disable 1:enable	Advance Settings Command
32	Enable DHCP	Function: Enable DHCP Channel: No this option Parameter: 0:disable 1:enable	Advance Settings Command
33	Auto Detect Load Once	Function: Automatically detecting load current once Channel: No this option Parameter: No this option	Advance Settings Command

Index	Function	Description	The Corresponding Interface
34	Set Working Mode	Function: Set working mode Channel: No this option Parameter: 0: general lighting mode 1:Normal trigger mode 2:High intensity trigger mode 3: enable set the working mode on panel.	Advance Settings Command
35	Read Working Mode	Function: Read working mode Channel: No this option Parameter:0:Continuous 1:Normal trigger mode 2:High Intensity Trigger Mode	Advance Settings Command
36	Set Keep-alive Parameter	Function: Set keep-alive parameter Channel: No this option Parameter0: Keep-alive time Parameter1: Keep-alive interval Parameter2: Keep-alive probes	Advance Settings Command
37	Enable Keep-alive	Function: Enable keep-alive Channel: No this option Parameter: 0:disable 1:enable	Advance Settings Command
38	Read Channels	Function: Read channel amount Channel: No this option Parameter: No this option	Advance Settings Command
39	Read Keep-alive Switch State	Function: Read the keep-alive switch state for Ethernet communication Channel: No this option Parameter: No this option	Advance Settings Command
40	Read Continuous Keep-alive Time	Function: Read continuous keep-alive time for Ethernet communication Channel: No this option Parameter: No this option	Advance Settings Command
41	Read Delivery Interval Time of Prop Packet	Function: Read delivery interval time of Probe Packet for Ethernet communication Channel: No this option Parameter: No this option	Advance Settings Command
42	Read Delivery	Function: Read delivery times of Probe Packet for Ethernet communication	Advance Settings Command

Index	Function	Description	The Corresponding Interface
	Times of Prop Packet	Channel: No this option Parameter: No this option	
43	Read Output Board Vision	Function: Read the output board vision of controller Channel: No this option Parameter: No this option	Advance Settings Command
44	Read Load Detection Mode	Function: Read load detection mode of controller Channel: 1-2 Parameter: No this option	Advance Settings Command
45	Set Boot Protection	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 Model Boot State	Function: Read model boot state for corresponding channel Channel: The corresponding channel for reading boot protection. Parameter: No this option	Advance Settings Command
47	Set the status of the high intensity trigger output duty cycle limit switch	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:Turn off 1:Turn on	Advance Settings Command
48	Read the status of the high intensity trigger output duty cycle limit switch	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 limit switch. Parameter: No this option	Advance Settings Command
49	Set the duty cycle of the high intensity trigger output	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

Index	Function	Description	The Corresponding Interface
50	Read the duty cycle of the high intensity trigger output	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: No this option	Advance Settings Command
51	Set the differential pressure limit function switch status	Function: Set the status of differential pressure limit function switch Channel: The corresponding channel for setting the differential pressure limit function switch status. Parameter: 0:Turn off 1:Turn on	Advance Settings Command
52	Read the differential pressure limit function switch status	Function: Read the status of differential pressure limit function switch Channel: The corresponding channel for reading differential pressure limit function switch. Parameter: No this option	Advance Settings Command

3.2 Programmable Trigger Interface

Index	Function	Operation Instruction	The Corresponding Interface
1	Trigger Mode Settings	Select the “Programmable trigger mode” in the option; “Set Trigger Mode” via the function selection.; Select the corresponding channel of the controller; Select corresponding trigger mode in the parameter box and then click “apply” button. The parameter including edge trigger mode, RT trigger mode and programmable mode.	Programmable Trigger Function
2	Trigger Mode Reading	Select the “Read Trigger Mode” in the function selection; Select the corresponding channel of the controller and then click “apply” button. Status bar will return the corresponding trigger mode.	Programmable Trigger Function
3	Add the Programmable Step	Click the “+” button in the interface. Set the trigger source, intensity level and pulse width.	Programmable Trigger Function
4	Delete the Programmable	Select the step which need to be deleted and click the “-” button in the interface.	Programmable Trigger Function

Index	Function	Operation Instruction	The Corresponding Interface
	Step		
5	Write Programmable Table	Set the programmable table via “+” button and then click “ write” button	Programmable Trigger Function
6	Read Programmable Table	Select the “Read Programmable Trigger Table” in the function selection , then select corresponding channel of the controller ,click the “apply” button at last	Programmable Trigger Function
7	Import Programmable Table	Click “Import” button, select the programmable file and open it then click “ write” button	Programmable Trigger Function
8	Export Programmable Table	Click the “export” button, select the save location, name the file and click it by save	Programmable Trigger Function
9	Read the Sum of Programmable Step	Select the “Read Step Count” in the function selection, then select the corresponding channel , click the “apply” button at last	Programmable Trigger Function
10	Set Current Step of Programmable Process	Select the “Set Cur Step Index” in the function selection , then select corresponding channel of the controller and set the step that the programmable trigger mode will work start at this step when the next trigger source coming in the parameter option (the value should be larger than 1 but less than the max step.)	Programmable Trigger Function
11	Read Current Step of Programmable Process	Select the “Read Cur Step Index” in the function selection , then select corresponding channel of the controller and click the “apply” button at last	Programmable Trigger Function
12	Reset Current Step of Programmable Process	Select the “Reset Cur Step Index” in the function selection , then select corresponding channel of the controller and click the “apply” button at last	Programmable Trigger Function
13	Clear Status	Click the “Clear” button	

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 website below:

http://www.optmv.net/index.php/Productionservice/pro_detail/pro_id/99 .

4. Installation Guidance



Index	Interface	Description
1	Screw Hole	Install screw
2	DIN Rail Track	Standard DIN rail installation

4.1 DIN Guide Rail Installation

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.

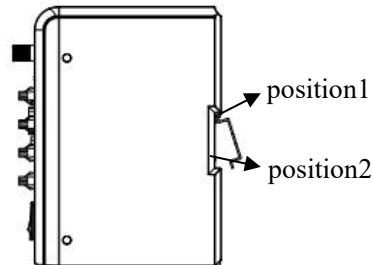


Figure 4.1 Guide rail installation

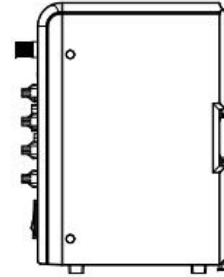


Figure 4.2 Guide rail Uninstallation

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.

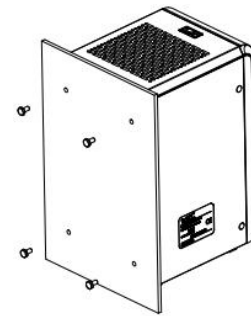


Figure 4.3 Screws installation

4.3 Installation Size

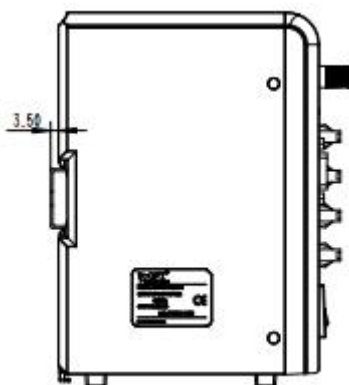


Figure 4.4 DIN guide rail size

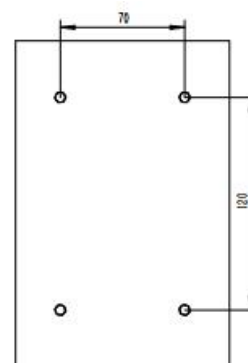


Figure 4.5 Screw size

5. Dimension Diagram

Mechanical Parameter:

OPT-DPA6024E-2

