No.8 JinSheng Road, JinXia community, ChangAn Town, DongGuan City, Guangdong Province

TEL：0769-82716188 FAX：0769-81606698
E-mail：optmv@optmv.com website：www.optmv.com

OPT-AP1024F Series
Analog Voltage Controller User Manual

OPT Machine Vision Tech Co.,Ltd.

Revised in August 18,2020 V1.0.1

Copyright Reserved

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	2016.2.10	First release
V1.0.1	2020.8.18	1. Revise the 2.3.2 Working Mode Setting chapter. 2. Revise the 2.3.3 Trigger Sequence chapter.

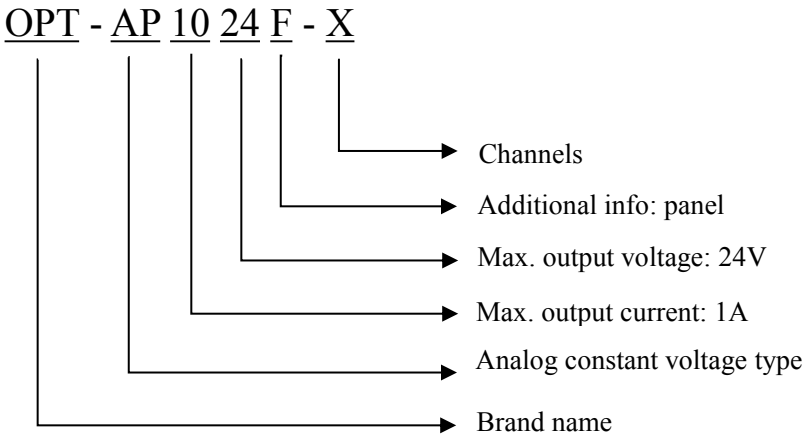
Contents

1. Product Introduction

1.1 Overview

First of all, thank you for choosing OPT products. The OPT-AP1024F series controllers are analog constant voltage controllers with 1, 2, 3, and 4 channels in 4 products, applied to the light sources with rated voltage of 24V and current within 1A. It has the following functions: manual stepless brightness adjustment, external trigger control.

1.2 Selection Guide



1.3 Model Classification

Model	Channels	Compatible Light
OPT-AP1024F-1	1	10mA -1A 24V
OPT-AP1024F-2	2	10mA -1A 24V
OPT-AP1024F-3	3	10mA -1A 24V
OPT-AP1024F-4	4	10mA -1A 24V

1.4 Performance Parameters

Item	Parameter		Description
Input Voltage	AC100-240V 50/60Hz		
Input Current	1.8A/115VAC 1A/230VAC		
Output Voltage	14.0 - 24.0 V adjustable(±0.2 V)		Continuously adjustable
Lighting Mode	Continuous / Strobe		
Intensity Control	Stepless		Via manual adjustment knob
External Trigger Input	Strobe synchronization with external signals		See chapter 2.3 for details
Triggering	Switch		
Respond time	≤ 80μs		
Respond frequency	≤ 1KHz		
ON/OFF Mode Conversion	Yes		Through the working mode switch TS to achieve ON and OFF mode switching, refer section 2.3 for details
Output Power	24W/CH		AP1024F-2 total output does not exceed 30W; AP1024F-3/4 total output does not exceed 40W;
Standby Power Consumption	AP1024F-1	< 1.1W	Connect AC220V Test
	AP1024F-2	< 1.1W	
	AP1024F-3	< 1.2W	
	AP1024F-4	< 1.2W	
Hi-Pot Test	AC1500V, 1min		Leakage current<10mA
Insulation	DC500V		Insulation resistance>20MΩ
Operating Temperature	-5℃-50℃		
Dimensions （L×W×H）	73.5×129.5×166mm		See Chapter3 for details
Weight (Kg）	AP1024F-1/2	0.56±0.02	
	AP1024F-3/4	0.66±0.02	

2. Operation Instructions

2.1 Panel Description

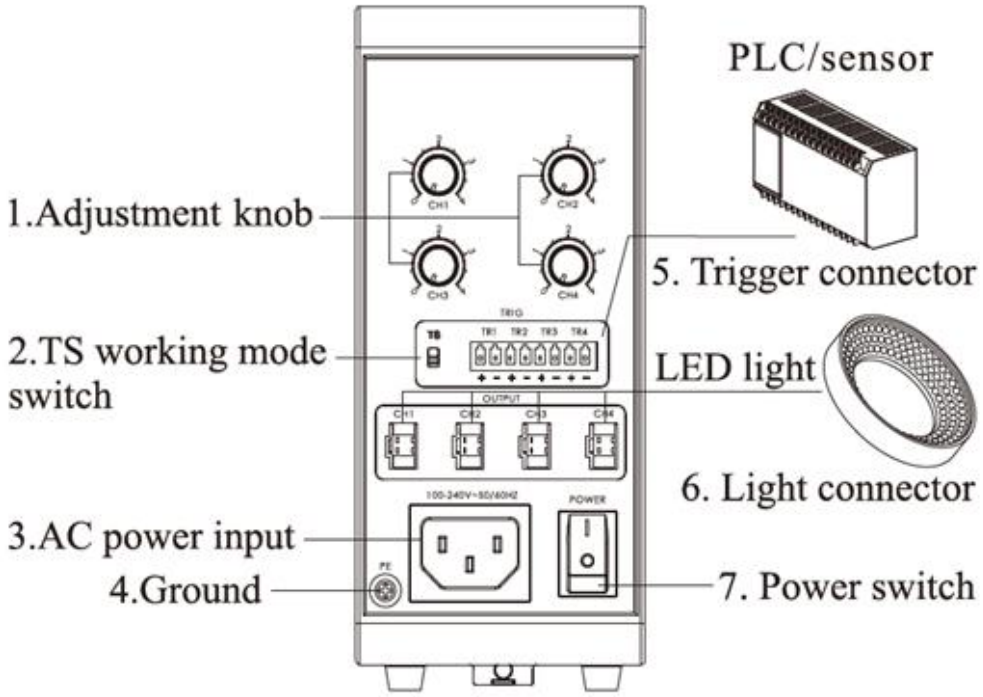


Figure 2.1

Note:

The image above is for AP1024F-4.The last number in Model AP1024F-1/2/3 indicates the number of adjustment knob,external trigger connector and light connector.

No.	Item	Description
1	Adjustment Knob	The four adjustment knobs correspond to the four light source interface respectively. Turn clockwise to increase the brightness of the light source and turn counterclockwise to decrease the brightness of the light source.
2	TS Working Mode Switch	Moved up for ON mode ,and down for OFF mode
3	AC Input Port	AC100 - 240V 50 / 60Hz
4	Ground	Grounding protection
5	Trigger connector	Connects external trigger for strobe such as PLC, sensors, etc
6	Light connector	Connect to light source rated voltage within 24V 1A
7	Power switch	Turn on/off the controller

2.2 Connection Steps

Step 1: Rotate the adjustment knob counterclockwise to a minimum.
Step 2: Connect the light source to the controller's light source interface (refer Figure 2.1).
Step 3: If external trigger control is required, connect the external trigger source to the controller trigger port (refer to Section 2.3.4).
Step 4: Connect AC100 - 240V power supply. Press the red power switch button "-", "O" protrudes, and the indicator light is on, indicating that it is powered on.
Step 5: Turn the adjusting knob to make the corresponding channel light source brightness reach the required value Turn the knob clockwise to increase the light. Turn the knob counterclockwise to reduce the brightness of the light source.

2.3 Trigger Function

2.3.1 Trigger Connector

AP1024F-1/2/3/4 offer 1,2,3or 4 trigger channels respectively.Each channel has “+” and “-” input ports.The image below shows the trigger connector of AP1024F-4.Please refer to the “Switch Trigger Wiring Diagram” for more details.

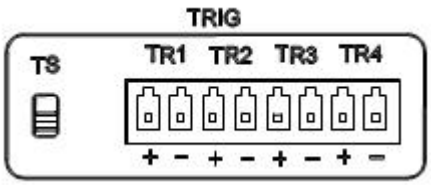


Figure 2.2

2.3.2 Working Mode Setting

This series of controllers have two working modes: always on and off, which are set by the external TS working mode switch, which is defined as follows:

TS	Working Mode	Description
Up	ON	Light is on when ‘Trig+’ and ‘Trig-’ are disconnected; light is off at the short circuit.
Down	OFF	Light is off when ‘Trig+’ and ‘Trig-’ are disconnected; light is on at the short circuit.

2.3.3 Trigger Sequence

ON Mode
After an external signal is connected, light is on when ‘Trig+’ and ‘Trig-’ are

disconnected; light is off at the short circuit.Refer to Figure 2.3.

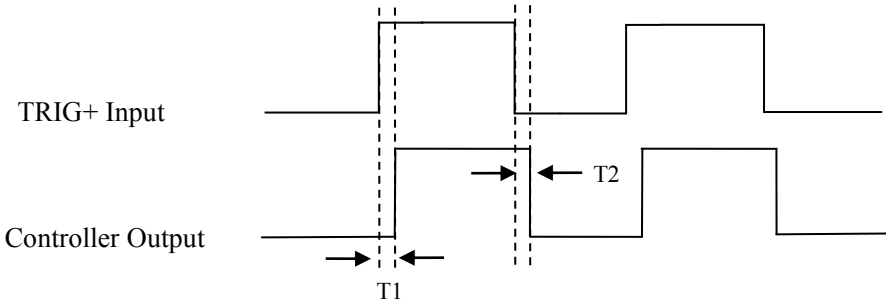


Figure 2.3

OFF Mode

After an external signal is connected, light is off when 'Trig+' and 'Trig-' are disconnected; light is on at the short circuit.Refer to Figure 2.4.

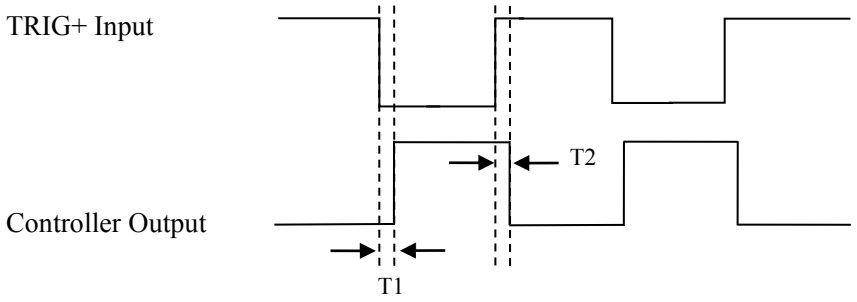


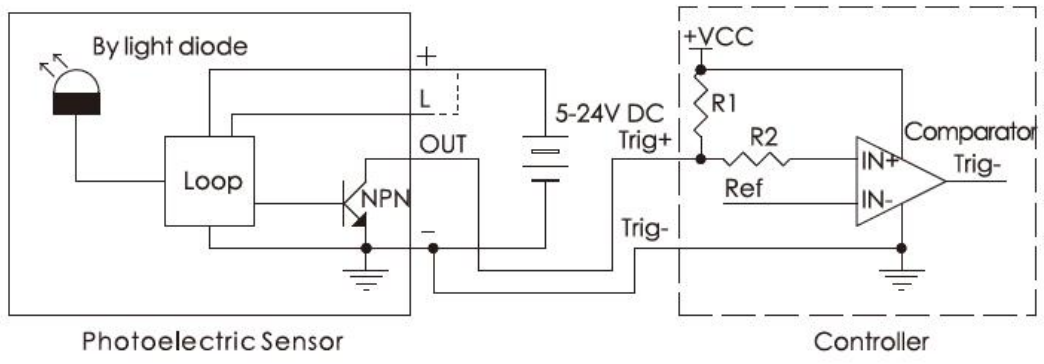
Figure 2.4

Notes：

T1：Enabling respond time,T2:Disabling respond time,T1≤80μs; T2≤80μs

2.3.4 Switch Trigger Wiring Diagram

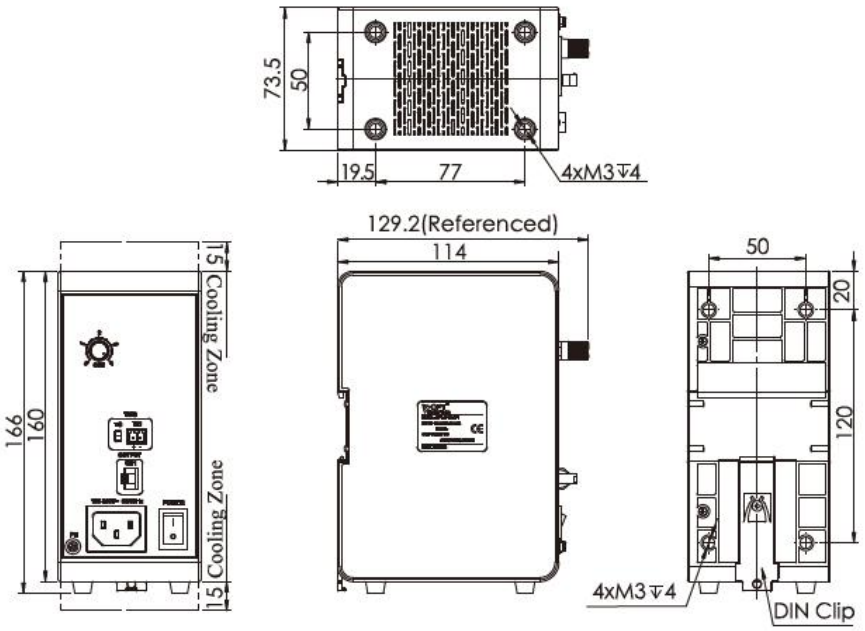
The following is the wiring method of the photoelectric switch and the trigger port of the OPT controller.



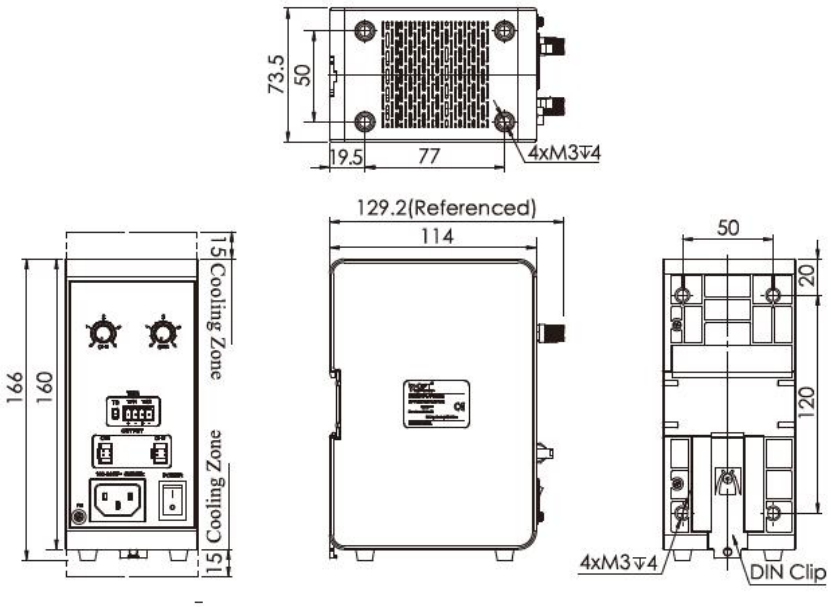
3. Dimension Diagram

Mechanical Parameters

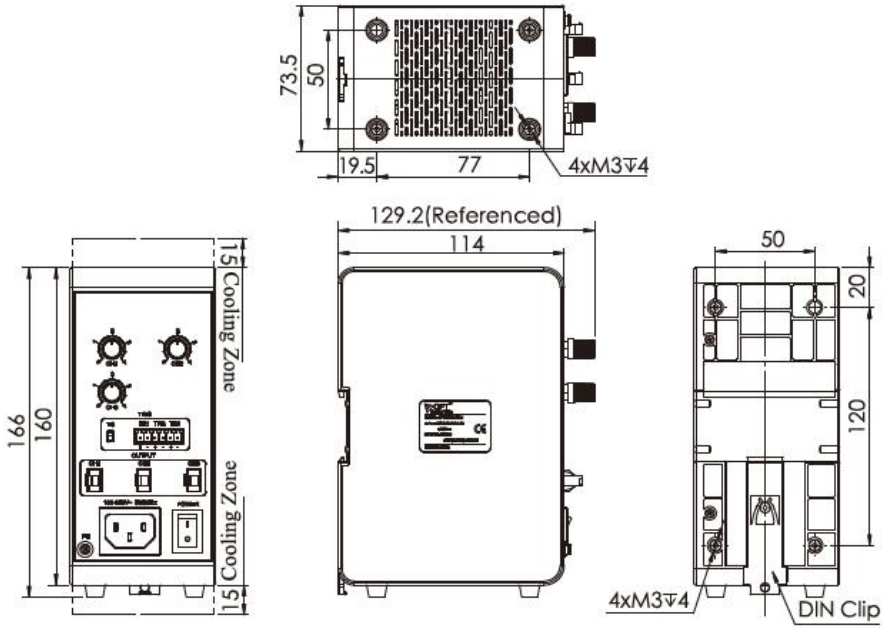
1.OPT-AP1024F-1



2.OPT-AP1024F-2



3. OPT-AP1024F-3



4.OPT-AP1024F-4