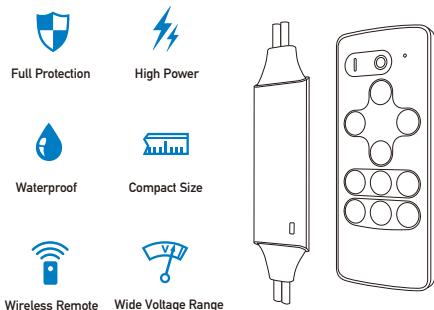


2-Wire CCT LED Controller

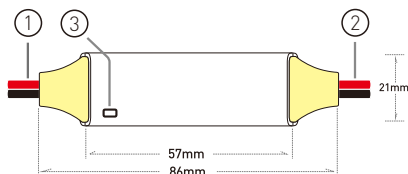
Model: P21(-S)



Introduction

P21 LED controller is designed to drive 2-wire tunable white (CCT) constant voltage LED products in voltage range of DC5-24V. With the RF remote controller, user can setup LED brightness and color temperature with + and - and shortcut keys.

Function & Size



1. Power supply input

The controller supply voltage range is from DC 5V to 24V. Please refer to the print on the controller for cable polarity. The output voltage is at the same level as the power voltage, please make sure the power supply voltage is correct and the power wattage is capable for the load wattage.

2. LED output

Connect LED loads to this terminal. Install LED positive cable into the terminal marked with '+' and negative LED cable into the terminal marked with '-'. Please make sure the LED rated voltage is same as the power supply and each channel's maximum load current is in range of the controller's rated current.

If the light color temperature is reversed from the remote controller operation, Please reverse the + and - cable to correct.

3. Work status indicator

This indicator shows all working status of the controller. It displays different events as following:

Steady blue : Normal working.

Single white blink: Command received.

Long single yellow blink: Brightness or CCT limit.

Red flash: Overload protection.

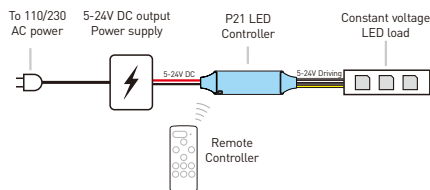
Yellow flash: Over heat protection.

White flash 3 times: New remote controller paired.

Wiring

Please connect the controller output to LED loads and power supply to the controller power input. The power supply voltage must be same as the LED load's rated voltage. Check all cables to be well connected and insulated before power on.

1

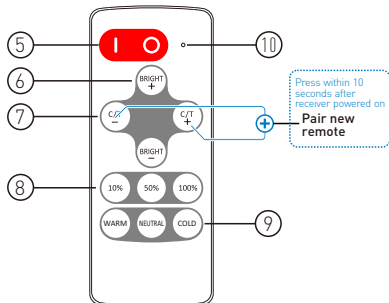


Functions

5. Turn ON / OFF

Press 'I' key to turn on unit or press 'O' key to turn off. Main unit will memorize the on/off status and will restore to the previous status on next power on.



Please use remote controller to turn on the unit if it was switched to off status before power cut.



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6. Brightness control

Adjust overall brightness. Press  to increase brightness and press  to decrease. The color temperature will keep unchanged when adjust brightness.

The controller applies brightness gamma correction on dimming control, makes the brightness tuning more smooth to human sense.

7. Color temperature control

Adjust LED color temperature. Press  to increase the color temperature and press  to decrease. The overall brightness will keep unchanged when adjusting color temperature.

8. Brightness shortcut keys

Jump to the relative brightness level when press the corresponding keys.

9. Color temperature shortcut keys

Set the color temperature to full cool white, full warm white or neutral white which is 50% warm and 50% cool white.

10. Remote indicator

This indicator blinks when remote controller is working. If the indicator flash slowly when pressing keys, it means the remote battery is nearly empty and please change the battery in this case. The battery model is CR2032.

4

Advanced features

14. Waterproof (-S version)

The IP-68 waterproof feature with glue injection finish is available on -S version controllers. For overall waterproof performance, the cables must be waterproof treated separately.

Wireless signal degrade : The wireless communication ability could degrade when using at wet environment, please be aware that the wireless control distance will be shortened in such case.

15. Protection function

The controller has full protection function against wrong wiring, load short circuit, overload and overheat. The controller will stop working and the indicator will flash with red / yellow color to indicate the malfunction. The controller will try to recover from protection status in a short time when the working condition is good.

For protection issues, please check the situation with different indicator information:

Red flash: Check the output cables and load, make sure no short circuit and the load current is in rated range. Also the load must be constant voltage type.

Yellow flash: Check the installation environment, make sure in a rated temperature range and with good ventilation or heat dissipation condition.

6

Operation

11. Using the remote controller



Please pull out the battery insulate tape before using. The RF wireless remote signal can pass through some nonmetal barrier. For proper receiving remote signal, please do not install the controller in closed metal parts.

12. Pair a new remote controller

The remote controller and main unit is 1 to 1 paired as factory default. It's possible to pair maximum 5 remote controllers to one main unit and each remote controller could be paired to any main unit.

User could pair a new remote controller to main unit by following two steps:

1). Plug off the power of main unit and plug in again after more than 5 seconds.

2). Press  and  key simultaneously for about 3 seconds, within time of 10 seconds after the main unit powered on.

13. Keep current remote only

In some cases, one main unit might be paired with several remote controllers but extra remote controllers are no longer needed. User could simply pair the current using remote to main unit again, then the main unit will dis-pair all other remote controllers and recognize current one only.

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Specification

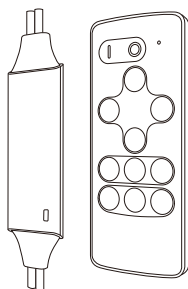
Model	P21	P21-S
Brightness grade	11 levels	
Brightness shortcut	3 levels	
Color temperature grade	7 levels	
Color temperature shortcut	3 levels	
PWM grade	4000 steps	
Overload protection	Yes	
Overheat protection	Yes	
Working voltage	DC 5-24V	
Remote frequency	433.92MHz	
Remote control distance	>15m at open area	
Rated output current	7A	
Waterproof	Ip63	Ip68

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RF无线遥控

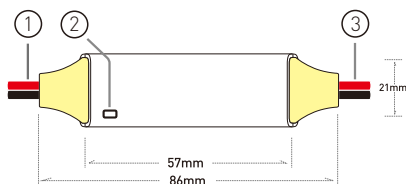
双线冷暖白LED控制器

型号: P21(-S)



简介

P21双线冷暖白LED控制器用来驱动电压范围为5V到24V的LED灯带或LED模块等恒压LED灯具。用户可以通过卡片式射频控制器来调节LED灯具的亮度和色温。控制器需要直流电源供电,并根据接收到的遥控器指令驱动LED灯具,实现亮度和色温的调节功能。



安装

1. 电源输入

控制器可接受电压为5V到24V的直流电源供电,请将红色电缆线连接到电源的正极,黑色电缆线连接到电源的负极。请确保LED灯具的额定电压与电源电压相同,且电源的功率满足控制器和灯具的需求。

为保证安全,在通电前请先确保所有电缆均已可靠连接且绝缘良好。

2. LED输出

连接到LED灯具。请将红色电缆线连接到LED灯具的正极,黑色电缆线连接到LED灯具的负极,请确保LED的额定电压与电源相同,并且每个通道的最大负载电流在控制器的额定电流范围内。

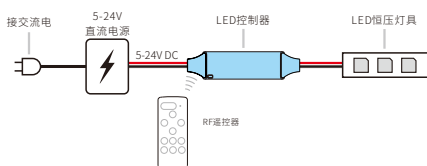
3. 工作状态指示灯

该指示灯显示控制器的工作状态,指示灯与控制器工作状态和对应关系如下:

- 蓝色常亮: 正常工作
- 白色单闪: 收到命令
- 黄色慢闪: 达到速度或亮度极限
- 红色闪烁: 过载保护
- 黄色闪烁: 过热保护
- 白色闪烁3次: 新遥控器配对成功

4. 接线图解

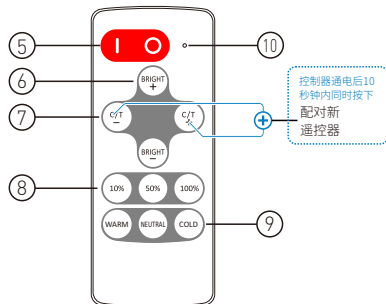
请将控制器输出与LED恒压灯具相连接,并将控制器输入与电源相连接。电源电压需与LED恒压灯具的额定电压相同。请在通电前检查所有电缆连接是否正确。



功能

5. 开关

按“I”键开启灯光,按“O”键关闭。控制器会记忆断电前的开关状态,如果在断电前处于关机状态,下次通电后请使用遥控器开灯。



6. 亮度调节

调节灯光亮度。按 \odot 键增加亮度，按 \ominus 键降低亮度。调节亮度时灯光色温保持不变。

本机的调光控制应用了伽玛校正原理，可以使亮度调节更加顺滑，更符合人眼的视觉体验。

7. 色温调节

调节灯光色温。按 \odot 键提高色温，按 \ominus 键降低色温。

8. 亮度快捷键

按下相应键时跳转到相对的亮度级别。快捷键的亮度等级为人眼感受的级别，与实际输出功率并不成比例。

9. 色温快捷键

跳转到对应的色温。色温快捷键分别有全冷白、全暖白或中性白（即 50% 暖白和 50% 冷白）。

10. 遥控器指示灯

按下遥控器按键时，该指示灯会快速闪烁。如果指示灯慢闪，则说明遥控器电池电量已耗尽，请更换遥控器电池（CR2032型纽扣电池）。

■ 遥控器操作方法

11. 使用遥控器

使用前请拔出遥控器电池绝缘片。RF无线遥控信号可以穿过一定的非金属屏障，为了保证控制器的接收效果，请勿将控制器安装在有大面积金属遮挡的位置。

12. 与新遥控器配对

遥控器和控制器出厂默认为1对1的配对状态。1个控制器最多可配对5个遥控器，而遥控器可配对到任意的控制器。

如需配对新遥控器，请按以下两个步骤操作：

1) 断开控制器电源，并在超过5秒后重新通电。

2) 在控制器通电后的10秒内，同时按下新遥控器 \odot 和 \ominus 键约3秒钟。

配对成功后，控制器指示灯将闪烁3次提示配对完成。

13. 保留当前遥控器并清除其他遥控器

在控制器已与多个遥控器配对，而仅想保留当前遥控器的情况下，可以将正在使用的遥控器与控制器再进行一次配对操作，此后控制器将清除其他已配对的遥控器而仅保留当前使用的遥控器。

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■ 高级功能

14. IP68防水(-S版)

后缀为-S版本的控制器应用了注塑防水工艺，可以达到IP68的防水等级。为了确保整体的防水效果，需要对输入输出电缆做单独的防水处理。

请注意：在浸水环境中，控制器的无线接收性能会下降，遥控器的控制距离会缩短甚至无法控制。

15. 保护功能

本产品具有完善的保护功能，可以最大程度的防止因接线错误、负载短路、过载或过热而引起的产品损坏。当发生以上异常状态时控制器将停止工作，同时指示灯会闪烁红色或黄色。当工作状态良好时，控制器会尝试恢复正常工作。

当控制器停止工作时，请检查指示灯的状态，在不同的闪烁状态下应检查相应的故障：

红色闪烁：请检查输出电缆是否短路、负载电流是否过高，并且请确保所驱动灯具为恒压驱动类型。

黄色闪烁：请检查控制器的安装环境以及负载功率，并确保控制器散热条件良好且负载功率在额定范围之内。

■ 规格

型号	P20	P20-S
亮度可调阶数	11级	
亮度快捷键	3个	
色温可调阶数	7级	
色温快捷键	3个	
PWM分辨率	4000级	
过载保护	有	
过热保护	有	
工作电压	DC 5-24V	
遥控器工作频率	433.92MHz	
遥控器工作距离	空旷地带>15米	
额定输出电流	7A	
防水等级	IP-63	IP-68

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