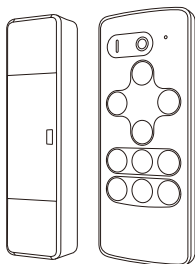
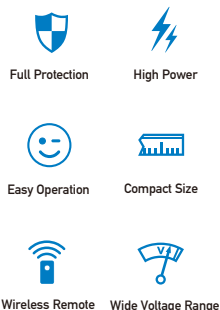


## Wireless Remote Control

## Tunable White LED Controller

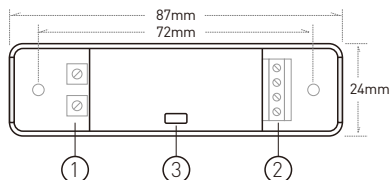
Model: N20



## Introduction

N20 tunable white LED controller is designed to drive constant voltage LED products with common anode connection in voltage range of DC5-24V. The main unit works with a RF remote controller, user can setup white tunable LED brightness and color temperature on the remote controller, the main unit is powered by DC power supply and receives remote controller commands to drive LED fixtures.

## Dimension



## Wiring &amp; Indicator

## 1. Power supply input

Install positive power cable into the terminal marked with '+' and negative power cable into the terminal marked with '-'. The controller can accept DC power from 5V to 24V, the output voltage is the same as the power supply, so please make sure the LED rated voltage is same as the power supply.

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## 2. LED output

Connect LED fixtures to this terminal. Install LED positive cable into the terminal marked with '+' and cool / warm white negative LED cable into the terminal marked with '-' at cool and warm marked section. The two '+' terminals are connected inside the controller. Please make sure the LED rated voltage is same as the power supply and each channel's maximum load current is below the controller rated current.

The controller will run into protection if the output been overloaded or short circuited. The indicator will flash red color and stop working in this case, Please check the wiring and load current to remove the fault.

## 3. Work status indicator

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

**Steady green:** Normal working.

**Single green blink:** Command received.

**Long single green blink:** Mode or color cycle edge.

**Long single yellow blink:** Brightness or speed limit.

**Red flash:** Overload protection.

**Yellow flash:** Over heat protection.

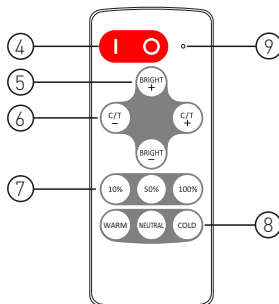
**Green flash 3 times:** New remote controller paired.

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

## 5. 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.



## 6. 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.

## Functions

## 4. 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.

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## 7. Brightness shortcut keys

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

## 8. Color temprature shortcut keys

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

## 9. 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.

## Operation



### 10. 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.

### 11. 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.

### 12. 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.

### 13. Protection

The main unit has full protection function for wrong wiring, output short circuit, overload and overheat. The controller will protect itself from damage at these extreme conditions and could automatically recover when working condition is good.

To avoid the protection, please ensure the LED fixtures are capable for constant voltage driving and in rated range, the cables are well connected and insulated. Also please install the controller with good ventilation and heat dissipation condition.

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## Specification

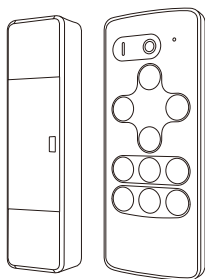
Model	N20
Brightness grade	11 levels
Brightness shortcut	3 levels
Color temperature grade	7 levels
Color temperature shortcut	3 levels
PWM grade	4000 steps
Overload protection	Yes
Overheat protection	Yes
Working voltage	DC 5-24V
Remote frequency	433.92MHz
Remote control distance	>15m at open area
Rated output current	2x5A
Controller dimension	87x24x15mm

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## RF无线遥控

## 冷暖白LED控制器

型号: N20



## 2. LED输出

将LED灯具连接到端子。将LED正极电缆安装到标有“+”的端子中，将冷/暖白色负极电缆安装到标记冷暖部分且标有“-”的端子中。两个“+”端子在控制器内部直接相连。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低于控制器额定电流。

如果输出出现过载或短路的情况，控制器会自动进入保护功能。此时指示灯会闪烁红色并停止工作，请及时检查接线和负载电流以排除故障。

## 3. 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的对应关系如下：

绿色常亮：正常工作。

绿色单闪：收到命令。

绿色慢闪：模式或颜色循环边缘。

黄色慢闪：亮度或速度极限。

红色闪烁：过载保护。

黄色闪烁：过热保护。

绿色闪烁3次：新遥控器配对成功。

## ■ 功能

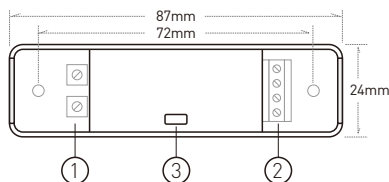
## 4. 开关

按“1”键开启灯光，按“0”键关闭。控制器会记忆断电前的开关状态，如果在断电前为关灯状态，下次通电后请使用遥控器开灯。

## ■ 简介

N20冷暖白LED控制器用来驱动电压范围为5V到24V的恒压LED灯具，用户可以通过卡片式射频遥控器来调节LED灯具的亮度和冷暖白色温。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，实现亮度和色温调节功能。

## ■ 尺寸



## ■ 接线及指示灯

## 1. 电源输入

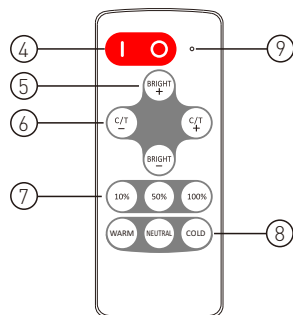
控制器可接受电压为5V到24V的直流电源供电，请将正极电源线安装到标有“+”的端子，将负极电源线安装到标有“-”的端子。控制器的输出电平与电源输入电压相同，请确保LED灯具额定电压与电源相同，且电源的功率满足控制器和灯具的需求。

为确保安全，请在断电的情况下连接电缆。

## 5. 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。



## 6. 色温调节

调节灯光色温。按 $\odot$ 键提高色温，按 $\ominus$ 键降低色温。调节色温时，灯光的亮度保持不变。

## 7. 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。

## 8. 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)。

## 9. 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)。

## ■ 操作方法

### 10. 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。

### 11. 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 $\text{④}$ 和 $\text{⑤}$ 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。

### 12. 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。

### 13. 保护功能

本控制器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,同时指示灯会闪烁黄色或者红色。当工作状态良好时,控制器会尝试恢复正常工作。

当控制器进入保护状态时,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,并确保灯具为恒压类型且兼容PWM调光方式。

**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。

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## ■ 规格

型号	N20
亮度可调级数	11级
亮度快捷键	3个
色温可调级数	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	2x5A
控制器尺寸	87x24x15mm

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