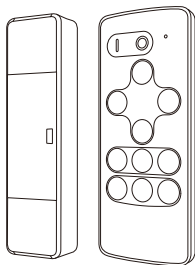
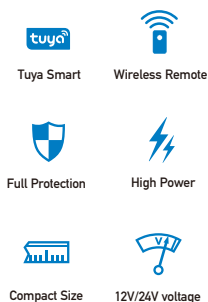


Smart & Remote Control

Tunable White LED Controller

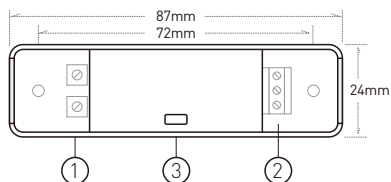
Model: NT20 (W/Z/B)



■ Introduction

NT20 LED controller is designed to drive constant voltage tunable white LED products in voltage range of DC12-24V. It can be controlled by smart phone with Tuya smart app connection or by the stand alone RF remote controller. User can setup LED brightness, color temperature and scene on smart phone Tuya app or the easy operation remote controller.

■ Dimension



■ Wiring & 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 12V to 24V, the output is PWM driving signal with same voltage level as the power supply, so please make sure the LED rated voltage is the same as the power supply.

1

2. LED output

Connect LED fixtures to this terminal. Install the load 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. Please make sure the LED rated voltage is same as the power supply and the maximum load current is below the controller rated current.

The controller will run into protection if the output was 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 if this occurred.

3. Work status indicator

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

Steady yellow: Remote only mode, Tuya disconnected.

Steady green: Remote and Tuya smart mode.

Single green blink: Command received.

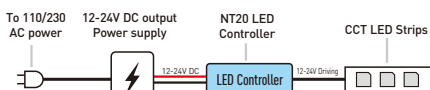
Long single yellow blink: Brightness or color reach limit.

Red flash: Overload protection.

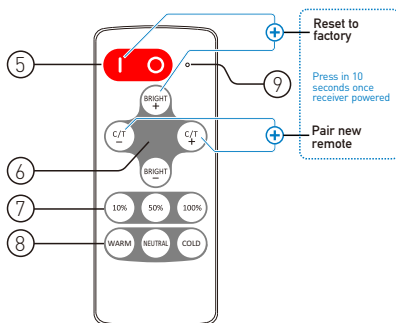
Yellow flash: Over heat protection.

Green flash 3 times: Setup command received.

4. Wiring diagram



■ Functions





5. Turn ON / OFF



Press 'I' key to turn on unit or press 'O' key to turn off. The power on status can be set to last status or default status from app. At last status mode, the controller will memorize the on/off status and will restore to the previous status on next power on. Please use remote controller or app to turn on if it was switched to off status before power cut.

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6. Brightness and cct control

Press  key to increase brightness and  key to decrease.

Press  key to increase color temperature and  key to decrease.

7. Brightness shortcut

Jump to the relative 10%, 50% and 100% brightness.
Note: The controller applies brightness gamma correction on dimming control, makes the brightness tuning more smooth to human sense. The brightness shortcut level is valued to human sense, it's not proportional to the LED output power.

8. Color temperature shortcut

Jump to minimum, middle and maximum color temperature labeled with warm, neutral and cold.

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 remote battery (CR2032 type).

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.

4

2). Press  and  key simultaneously for about 3 seconds, within 10 seconds after the receiver powered on.

After this operation, the indicator will flash yellow color for 3 times and the controller will be reset to factory default, the Tuya connection and remote pairing will all be reset.

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



11. Setup Tuya connection

Please install the Tuya app to setup the smart connection. Before setup, please make sure the controller is at factory default mode and not connected to other gateway or router. The controller indicator should be yellow color at this status.

12. Pair a new remote controller

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

To pair a new remote controller, please follow two steps:

- 1). Plug off the power of receiver and plug in again after more than 5 seconds.
- 2). Press  and  key simultaneously for about 3 seconds, within 10 seconds after the receiver powered on.

After this operation, the indicator will flash 3 times to acknowledge that remote pairing is accomplished.

13. Reset to factory default

To reset the controller's Tuya setting and unpair all remote controllers, please operate with following two steps:

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

5

Specification

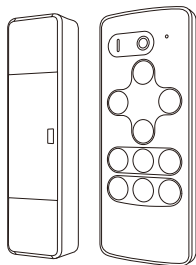
| Model | NT20 (W/Z/B) |
|-------------------------|----------------------------------|
| Output Mode | PWM constant voltage |
| Working voltage | DC 12-24V |
| Rated output current | 2x5A |
| Tuya connection | W: Wifi; Z: Zigbee; B: Bluetooth |
| Remote frequency | 433.92MHz |
| Remote control distance | >15m at open area |
| PWM grade | 4000 steps |
| Overload protection | Yes |
| Overheat protection | Yes |
| Controller dimension | 87x24x15mm |
| Remote dimension | 86.5x36x8mm |

6

涂鸦智能无线

冷暖白LED控制器

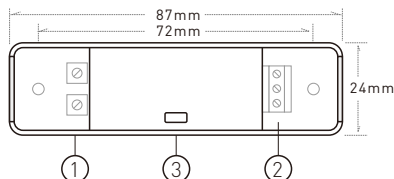
型号: NT20 (W/Z/B)



简介

NT20 冷暖白LED控制器是设计用于驱动电压范围为DC 12-24V的恒压LED产品。用户可以通过涂鸦智能app和卡片式射频遥控器来调节LED灯具的开关、亮度和色温。

尺寸



接线及指示灯

1. 电源输入

连接到电源。控制器可接受电压为12V到24V的直流电源供电，请将电源正极连接到标有“+”电缆上，电源负极连接到标有“-”电缆上。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。

1

2. LED输出

连接到LED灯具。请将LED灯具正极连接到标有“+”端子上，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，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。

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. 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：

黄色常亮：遥控模式，涂鸦智能未连接。

绿色常亮：遥控和智能模式。

绿色单闪：收到命令。

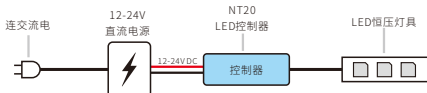
黄色慢闪：达到亮度或速度极限。

红色闪烁：过载保护。

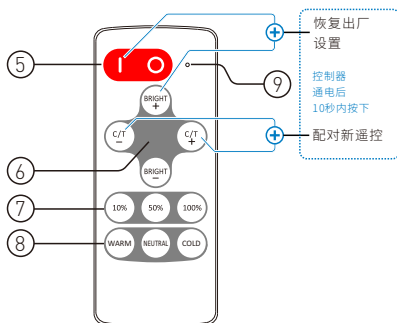
黄色闪烁：过热保护。

绿色闪烁3次：收到设置命令。

4. 接线图解



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，如果在断电前为关机状态，下次通电后请使用遥控器或者涂鸦智能app开灯。

6. 亮度和色温调节

按“ \uparrow ”增加亮度，按“ \downarrow ”降低亮度。按“ \odot ”键增加色温，按“ \odot ”降低色温。

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7. 亮度快捷键

亮度快捷键分别有全亮度的10%、50%、100%。
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。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

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. 连接涂鸦智能app

请通过安装并设置涂鸦智能app来进行连接。在设置连接前, 请确保控制器是处于出厂默认模式状态, 且没有连接任何网关或路由器。

■ 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。

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, 同时按下新遥控器的和键约3秒钟。

配对成功后, 控制器指示灯将闪烁3次并提示配对成功。

13. 恢复出厂设置

按以下两个步骤操作, 即可将涂鸦智能连接恢复到出厂状态, 同时已配对的遥控器也会被清除。

- 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, 同时按下遥控器的和键约3秒钟。

操作完成后, 控制器指示灯将闪烁3次黄色表示已恢复成出厂状态, 需要重新配置智能连接以及重新配对遥控器。

■ 规格

| 型号 | NT20 (W/Z/B) |
|---------|----------------------------------|
| 输出方式 | PWM恒压 |
| 工作电压 | DC 12-24V |
| 额定输出电流 | 2x5A |
| 涂鸦连接 | W: Wifi; Z: Zigbee; B: Bluetooth |
| 遥控器工作频率 | 433.92MHz |
| 遥控器工作距离 | 空旷范围 >15米 |
| PWM分辨率 | 4000级 |
| 过载保护 | 有 |
| 过热保护 | 有 |
| 控制器尺寸 | 87x24x15mm |
| 遥控器尺寸 | 86.5x36x8mm |