



# Rayrun NT20 Smart and Remote Control Tunable White LED Controller User Manual

[Home](#) » [RayRun](#) » Rayrun NT20 Smart and Remote Control Tunable White LED Controller User Manual 

## Contents

- [1 Rayrun NT20 Smart and Remote Control Tunable White LED Controller](#)
- [2 Introduction](#)
- [3 Dimension](#)
- [4 Functions](#)
- [5 FEATURES](#)
- [6 Wiring & Indicator](#)
- [7 Wiring diagram](#)
- [8 Turn ON/OFF](#)
- [9 Operation](#)
- [10 Specification](#)
- [11 Protection Function](#)
- [12 Documents / Resources](#)
- [13 Related Posts](#)

**Rayrun**

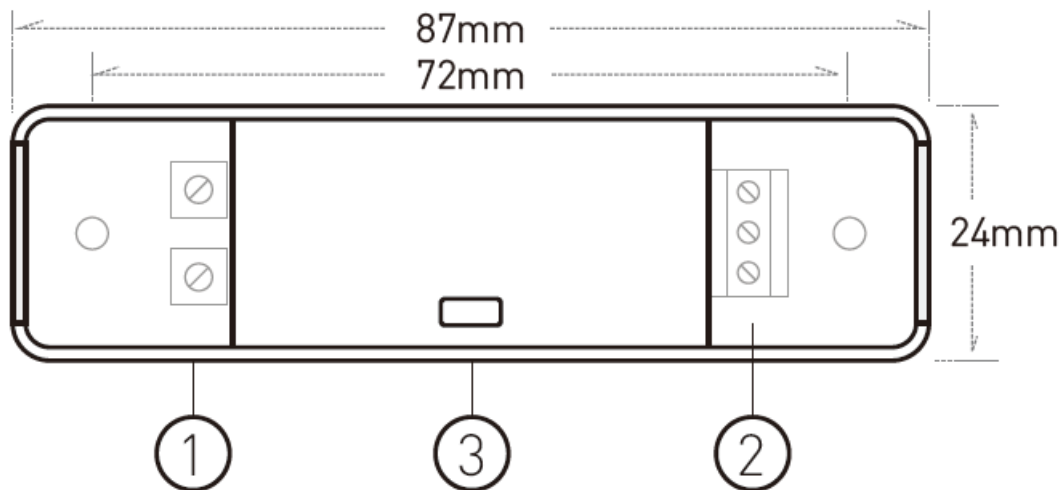
**Rayrun NT20 Smart and Remote Control Tunable White LED Controller**



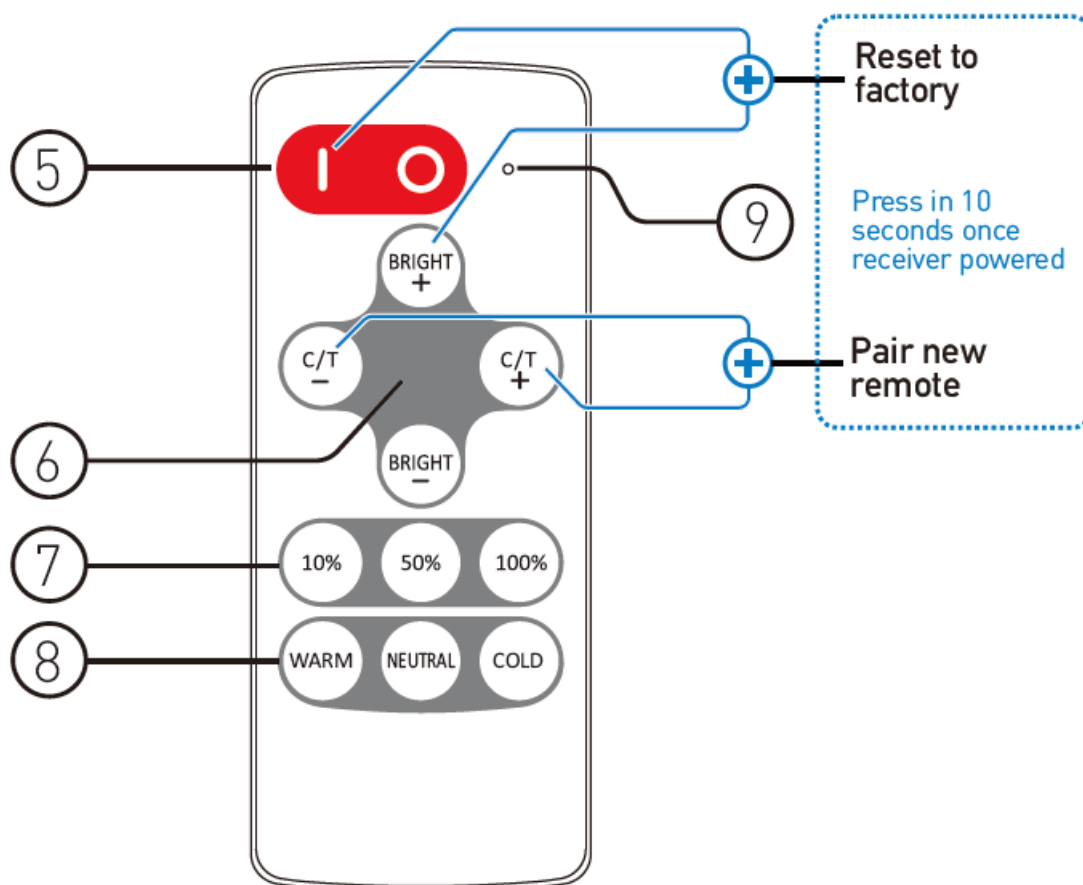
## Introduction

NT20 LED controller is designed to drive constantvoltage 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



## Functions



## FEATURES



Tuya Smart



Wireless Remote



Full Protection



High Power



Compact Size



12V/24V voltage

## Wiring & Indicator

## 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

## 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.

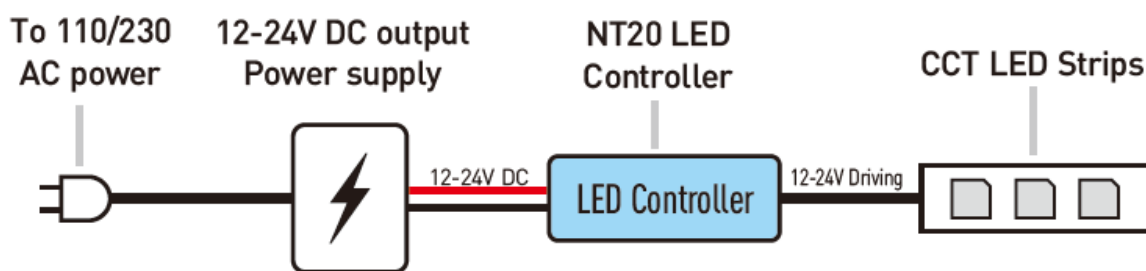
The controller will run into protection if the output was overloaded or short-circuited. The indicator will flash red color and stop working in this case, please check the wiring and load current to remove the fault if this occurred

## Work status indicator

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

- **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.


## Wiring diagram





## Turn ON/OFF

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

## Brightness and cct control

- Press  key to increase brightness and  key to decrease.

- Press  key to increase color temperature and  key to decrease.

## 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.

## Color temperature shortcut

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



## 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

### 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.

- 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.

## 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

## 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 the 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

### 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 the controller and plug in again after more than 5 seconds

### 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

### Protection Function

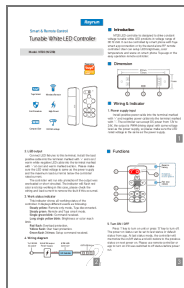
- The controller has full protection function against wrong wiring, load short circuit, overload and overheat.
- The controller will stop working and the indicator will flash with red / yellow color to indicate the malfunction.
- The controller will try to recover from protection status in a short time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

### Documents / Resources



[Rayrun NT20 Smart and Remote Control Tunable White LED Controller](#) [pdf] User Manual  
NT20 Smart and Remote Control Tunable White LED Controller, NT20, Smart and Remote Control Tunable White LED Controller, Remote Control Tunable White LED Controller, Tunable White LED Controller, LED Controller, Controller