



Single color to RGBW Model  
Remote + Smartphone  
Timing / Waterproof  
Group / Scene



BLE Mesh



Remote and Phone



Full Protection



Group / Scene



Ultra Compact



Waterproof

# Rayrun MP10 Umi Smart Wireless LED Controller User Manual

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**Rayrun**

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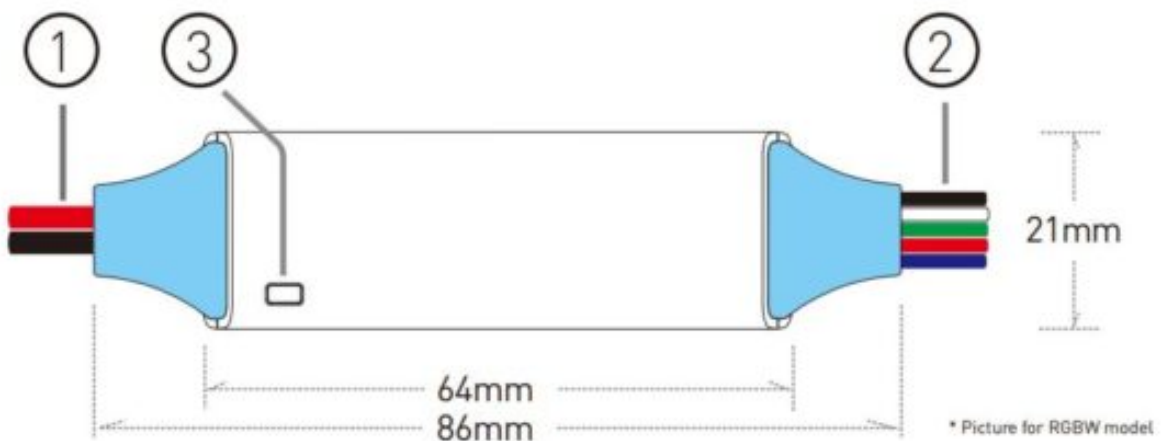
Waterproof

**Model: MP10 / MP20 / MP30 / MP40 (-A/T/S)**

## Introduction

This series LED controllers are designed to drive constant voltage LED products in voltage range of DC6- 24V. They can be controlled by the Umi compatible remote controllers and Smartphone app (-A version). With advanced BLE mesh technology, controllers can work synchronously with a robust connection. For option, IP68 waterproof feature is available on -S version, and timing play function is available on -T version.

## Function & Size



## 1. Power supply input

The controller supply voltage range is from DC 6V to 24V. The red power cable should be connected to power positive and black to negative. (For other cable color, please refer to the labels). The LED output voltage is at same level as the power voltage, please make sure the power supply voltage is correct and the power rating is capable for the load.

## 2. LED output

Connect constant voltage LED loads to these cables.

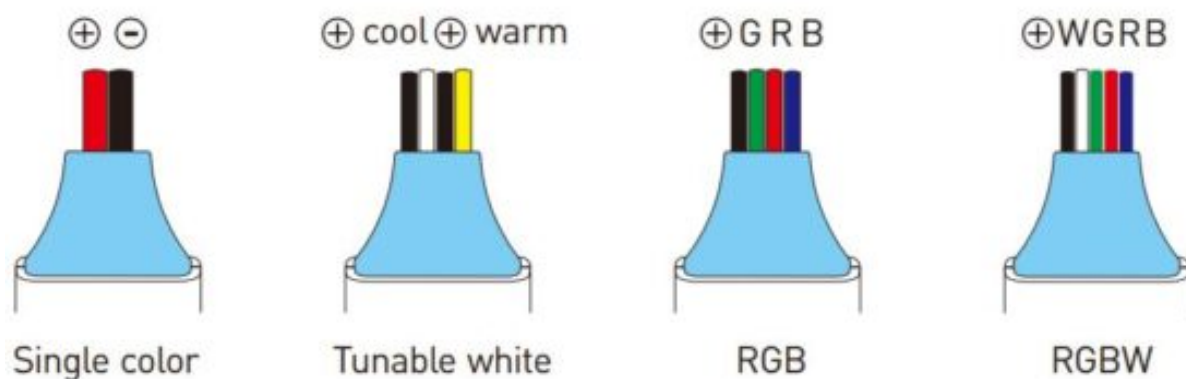
Please make sure the LED rated voltage is same as the power supply and each channel's maximum load current is in range of the controller rated current.

Please refer to following output wiring diagram for different models:

**Single color:** red cable to LED + and black to –.

**Tunable white:** black cable to LED , white to cool white + and yellow to warm white –. The two black cables are connected inside the controller.

**RGB and RGBW:** black cable to LED +, R, G, B and W cable to the relevant color –.



Model MP40-A and MP40-T can be configured to different application for single color, CCT, RGB or RGBW.

For different application, the 1-4 channel function is mapped as following table:

MP40 Application	CH1 (white cable)	CH2 (green cable)	CH3 (red cable)	CH4 (blue cable)
Single color	White	White	White	White
CCT	Cool white	Cool white	Warm white	Warm white
RGB	No use	Green	Red	Blue
RGBW	White	Green	Red	Blue

## 3. Work status indicator

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

**Steady blue:** Normal working.

**Short white blink:** Command received.

**White blink for 3 times:** Identification or confirmation.

**Single yellow flash :** Edge of the content.

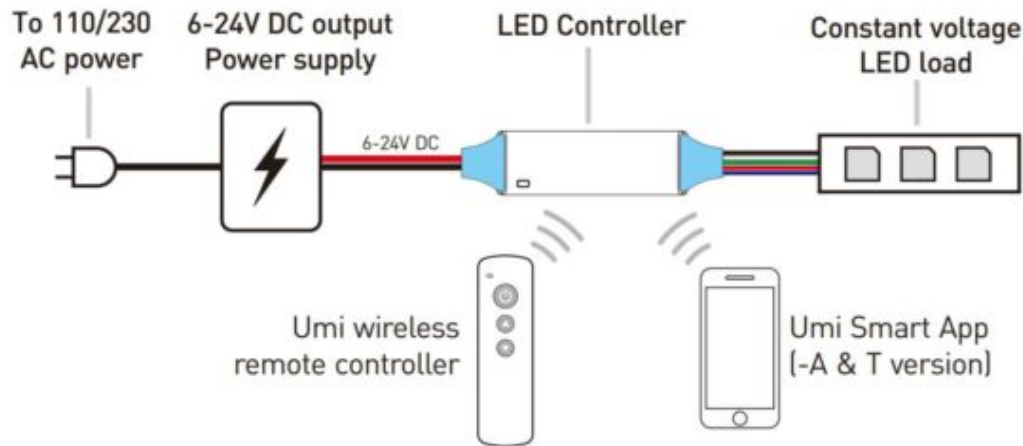
**Red flash:** Overload protection.

**Yellow flash:** Overheat protection.

**Green blink:** Timing play activated.

## 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.



## Operation

### 4. Pairing remote controllers

The controller can be paired with compatible Umi remote controller for operation. To pair or unpair the remote controller, user needs to connect and disconnect the power of controller and press specific combo keys on the remote controller. For detailed method, please refer to the remote controller's user's manual. Each controller can be paired up to total 5 remote controllers.

### 5. Control by smartphone

For -A & -T version controller, besides Umi wireless remote controllers, it can also be controlled by Umi Smart app. User can operate the controller from remote and/or Umi Smart app. The status and group/scene features will be synchronized from remote controller and App. Please search and download 'Umi Smart' app from Apple app store or Google play market to setup. There will also be a QR code on the controller for app download link.

## Advanced features

### 6. Change model function (MP40 only)

MP40-A and MP40-T controller's function can be changed from 1 channel (single color) to 4 channels (RGB+White) by Umi Smart app.

To change the model function, please use the Umi Smart app and detect factory default devices in 'Discover nearby' function and then tap the item icon and select 'change function' menu to proceed.

## 7. 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.

## 8. Force turning on

The controller will restore to the last on/off status on each power on. To force turn on the controller at OFF status, user need to connect and disconnect the power of the controller for 3 times in a short time. After this operation, the controller will be rest to ON status.

## 9. Timing play with backup battery (-T version only)

A real time clock with backup battery is equipped with the -T version model. With this feature, user can setup timing play function with multiple repeating features of weekday or date on the Umi Smart app.

The real time clock runs by itself and will correct time once connected to the smartphone app. The builtin backup battery will reserve the timing play setting up to 48 hours after power cut. The saved timing play function will be invalid after the backup battery runs out and it will automatically recover once being connected to smartphone again.

## 10. Change PWM frequency to avoid noise and flicker

In some LED application, noise or flicker issue may occur at the default or low PWM frequency. The controller's PWM frequency can be changed via the Umi Smart app. The frequency must be tuned with LED type and installation. To maintain more stable working and less power loss, please do not set to high frequency if no noise or flicker issues occurred.

To change the PWM frequency, please use the Umi Smart app and detect factory default devices in 'Discover nearby' function and then tap the item icon and select 'change setting' menu to proceed.

CAUTION: The controller's efficiency will drop versus increased frequency and the output current.

## 11. 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.

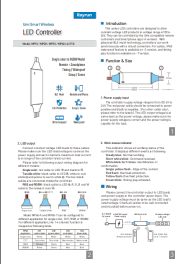
## Specification

Model	MP10	MP20	MP30	MP40
Function	Single color	CCT	RGB	4-in-1
Working voltage	DC 6-24V			
Rated output current	12A	2x7A	3x5A	3x3A+5A
Wireless connection	Umi protocol based on SIG BLE Mesh			
Smartphone app support	Yes, -A & -T version			
Timing play function	Yes, with backup battery. -T version			
Communication distance	>20 meters at open area			
Output mode	PWM constant voltage			
PWM frequency	498Hz-20.9KHz			
Overload protection	Yes			
Overheat protection	Yes			
Working temperature (Ta)	-20°C~+55°C			
Waterproof	IP63 for standard version, IP68 for -S version			
Dimension	86x21x8.5mm			

App download link: (for -A & -T version)

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## Documents / Resources

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