CONTIA TC421 WiFi

CONTIA TC421 WiFi RGB Time Programmable LED Controller User Manual

Model: TC421 WiFi

1. Introduction

The CONTIA TC421 WiFi RGB Time Programmable LED Controller is designed to manage the output of LED lighting systems over time. This device allows users to create customized lighting schedules and effects for up to five channels, making it suitable for various applications such as plant lighting, advertising light boxes, stage lighting, and home decoration. The controller supports both DC 12V and 24V LED strips and features a common anode connection method. With its programmable capabilities and WiFi functionality, users can precisely control LED color and brightness changes according to their specific needs.

2. Product Overview

The TC421 WiFi controller is a sophisticated device that enables time-based programming of LED light strips. It features a compact design with input and output terminals, a display screen, and control buttons for manual adjustments. The WiFi capability allows for remote programming and control, enhancing user convenience.

Figure 2.1: Front view of the CONTIA TC421 WiFi RGB Time Programmable LED Controller, showing the display, control buttons, and connection terminals.

The controller is equipped with a USB port for connecting to a host computer, allowing for detailed schedule creation and upload. It supports five output channels, each capable of handling up to 4A, for a total maximum load current of 20A. The common anode connection simplifies wiring for RGB and other multi-channel LED setups.

Figure 2.2: Detailed view of the controller's USB port, power input, and control buttons (Menu, Enter, Up, Down).

3. Package Contents

Please verify that all items are present and in good condition upon opening the package:

- 1 x CONTIA TC421 WiFi RGB Time Programmable LED Controller
- 1 x User Manual (this document)
- 1 x USB Cable

4. Specifications

Feature	Specification
Model	TC421 WiFi
Working Temperature	-20°C to 60°C (-4°F to 140°F)
Power Supply Voltage	DC 12V - 24V
Output Channels	5 channels (COMS open-drain output)
Maximum Load Current	4A per channel, 20A total
Connection Method	Common Anode
Dimensions (L x W x H)	120mm x 69mm x 24mm (4.72in x 2.72in x 0.94in)
Weight	Approximately 205g (7.23 oz)

5. Safety Instructions

- Ensure the power supply voltage matches the controller's requirements (DC 12V-24V). Incorrect voltage can damage the device.
- Do not exceed the maximum load current of 4A per channel or 20A total. Overloading can lead to overheating and device failure.
- Always disconnect power before making any electrical connections or disconnections.
- Install the controller in a dry, well-ventilated area, away from direct sunlight, high temperatures, and moisture.
- This device is designed for indoor use only.
- Keep out of reach of children.
- If the device appears damaged or malfunctions, discontinue use immediately and consult a qualified technician.

6. Setup and Installation

Follow these steps to properly install and connect your LED controller:

1. **Prepare Components:** Ensure you have the TC421 controller, a compatible DC 12V or 24V power supply, and your common anode LED light strips.
2. **Power Supply Connection:** Connect the DC 12V-24V power supply to the "INPUT" terminals on the controller. Ensure correct polarity: positive (+) to V+ and negative (-) to V-.

3. **LED Strip Connection:** Connect your LED light strips to the "OUTPUT" terminals. For common anode strips, connect the common positive (+) wire of the LED strip to the V+ terminal of the output. Connect the individual color negative (-) wires (e.g., Red, Green, Blue) to the corresponding CH1, CH2, CH3, CH4, CH5 terminals. The controller supports up to 5 channels.

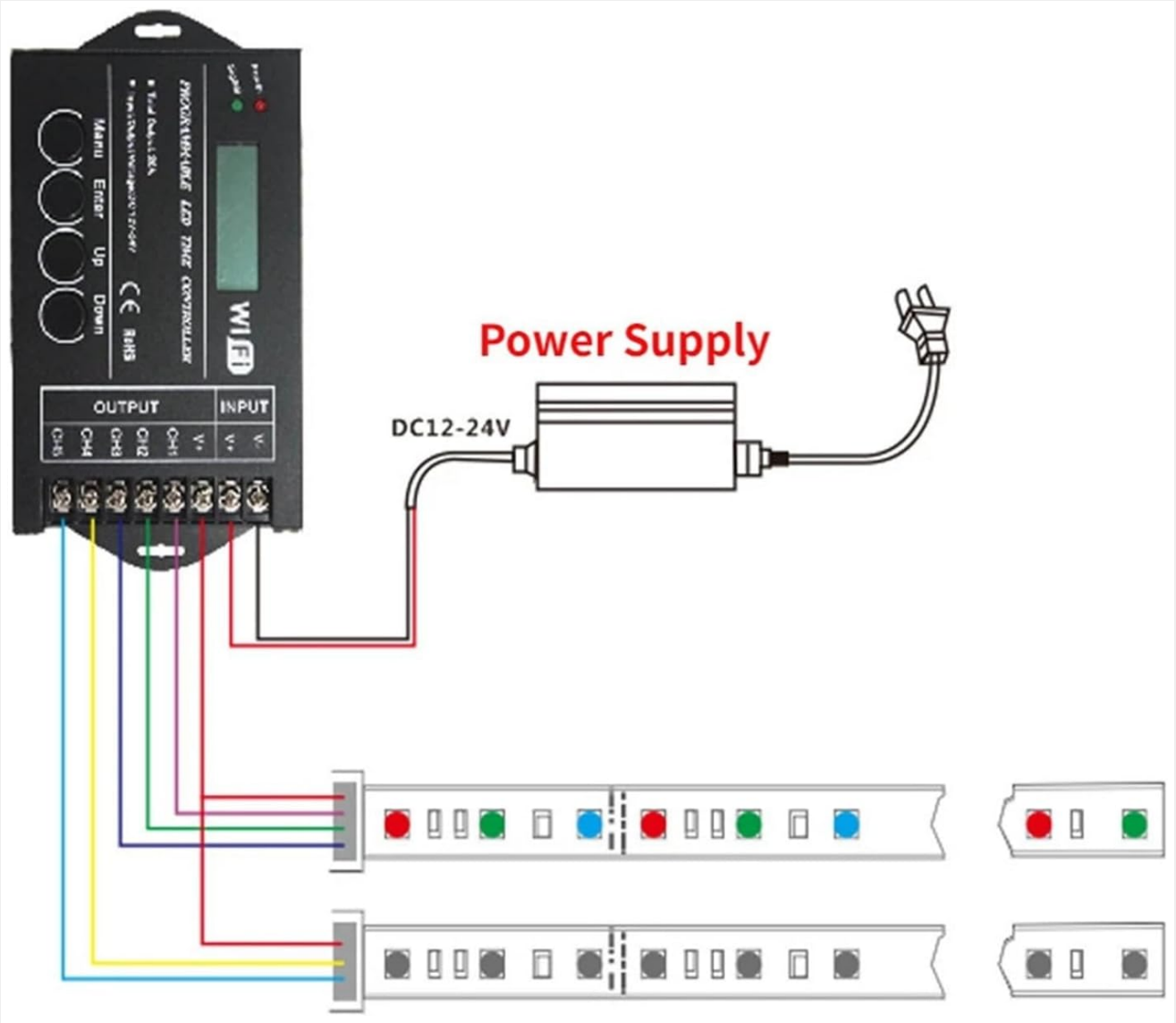

Figure 6.1: Wiring diagram illustrating the connection of the power supply and LED strips to the TC421 controller. The power supply connects to the INPUT terminals, and the LED strips connect to the OUTPUT terminals, ensuring common anode wiring.

4. **Secure Connections:** Double-check all wiring to ensure secure and correct connections. Loose connections can cause malfunctions or damage.
5. **Power On:** Once all connections are secure, connect the power supply to a wall outlet. The controller's display should light up.

7. Operation

The TC421 controller can be operated via its onboard buttons or through a host computer application.

7.1. Onboard Control Buttons

The controller features four buttons: **Menu**, **Enter**, **Up**, and **Down**. These buttons allow for basic navigation and adjustment of settings directly on the device's display. Refer to the display for current settings and menu options.

7.2. Host Computer Software (Programming)

For advanced programming and creating custom lighting schedules, use the dedicated host computer software. This software allows you to:

- **Edit Schedule Modes:** Create and customize various lighting effects and time-based programs.
- **Synchronize Clock:** Set the controller's internal clock to match your computer's time.
- **Download Schedules:** Transfer your created schedules from the computer to the controller via the USB port.
- **Preview Effects:** Utilize the "upper-level quick broadcast function" within the software to preview how your programmed schedules will appear.

Note: The host computer software does not have a direct deletion function for modes. Deleting a mode will result in its name display space becoming blank.

7.3. WiFi Functionality

The TC421 WiFi model includes WiFi connectivity for enhanced control options. Specific instructions for connecting to WiFi and using any associated mobile applications or web interfaces will be provided with the host computer software or available for download from the manufacturer's website. This feature typically allows for remote management and real-time adjustments of your lighting schedules.

8. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the controller's exterior. Do not use abrasive cleaners or solvents.
- **Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- **Connections:** Periodically check all wiring connections to ensure they remain secure.

9. Troubleshooting

Problem	Possible Cause	Solution
Controller does not power on.	No power supply, incorrect voltage, loose connection.	Check power supply connection and ensure it's plugged in. Verify power supply voltage is DC 12V-24V. Secure all input wiring.
LEDs do not light up or flicker.	Incorrect wiring, faulty LED strip, overloaded channel, incorrect program.	Verify LED strip wiring (common anode). Test LED strip with a different power source. Ensure channel load does not exceed 4A. Check programmed schedule.
Cannot connect to host computer.	Faulty USB cable, driver issue, software not running.	Try a different USB cable. Install necessary drivers for the controller. Ensure the host computer software is correctly installed and running.
WiFi connection issues.	Incorrect WiFi settings, out of range, network interference.	Refer to the specific WiFi setup instructions in the software. Ensure the controller is within range of your WiFi router. Check for network interference.

10. Warranty and Support

This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. For specific warranty terms and conditions, please refer to the documentation provided at the time of purchase or contact your retailer. For technical support, troubleshooting assistance, or inquiries regarding software updates,

please contact CONTIA customer service through their official website or the contact information provided with your purchase.