

## THKFMSRC RL-STEP-05

# THKFMSRC RL-STEP-05 Smart Dimming Controller User Manual

Intelligent LED Staircase Light Dimming Controller

## 1. INTRODUCTION

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This manual provides comprehensive instructions for the installation, operation, and maintenance of the THKFMSRC RL-STEP-05 Smart Dimming Controller. This device is designed to manage single-color LED strip lighting for stair steps, featuring motion sensor activation and dimming capabilities. Please read this manual thoroughly before installation and use to ensure proper function and safety.

## 2. PRODUCT OVERVIEW

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The THKFMSRC RL-STEP-05 is an intelligent controller for LED stair lighting systems. It integrates motion sensing to automatically illuminate stair steps as a user approaches or departs, providing both convenience and energy efficiency. The controller supports dimming functions for single-color LED strips.

### Key Features:

- Motion sensor activated lighting for stair steps.
- Smart dimming control for single-color LED strips.
- Supports DC 12V-24V input/output voltage.
- Maximum output current of 10A.
- Total power output up to 240W (single channel less than 15W).

## 3. SPECIFICATIONS

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Parameter	Value
Product Name	Intelligent LED Staircase Light Dimming Controller
Model Number	RL-STEP-05
Application	Single Color LED Strip
Input/Output Voltage	DC 12V-24V

Parameter	Value
Output Current	10A
Total Power	Less than 240W
Single Channel Power	Less than 15W
Switch Type	Dimmer Switch
Item Weight	1.76 ounces (Approx. 0.05 kg)
Package Dimensions	1.18 x 0.79 x 0.39 inches

## 4. SAFETY INFORMATION

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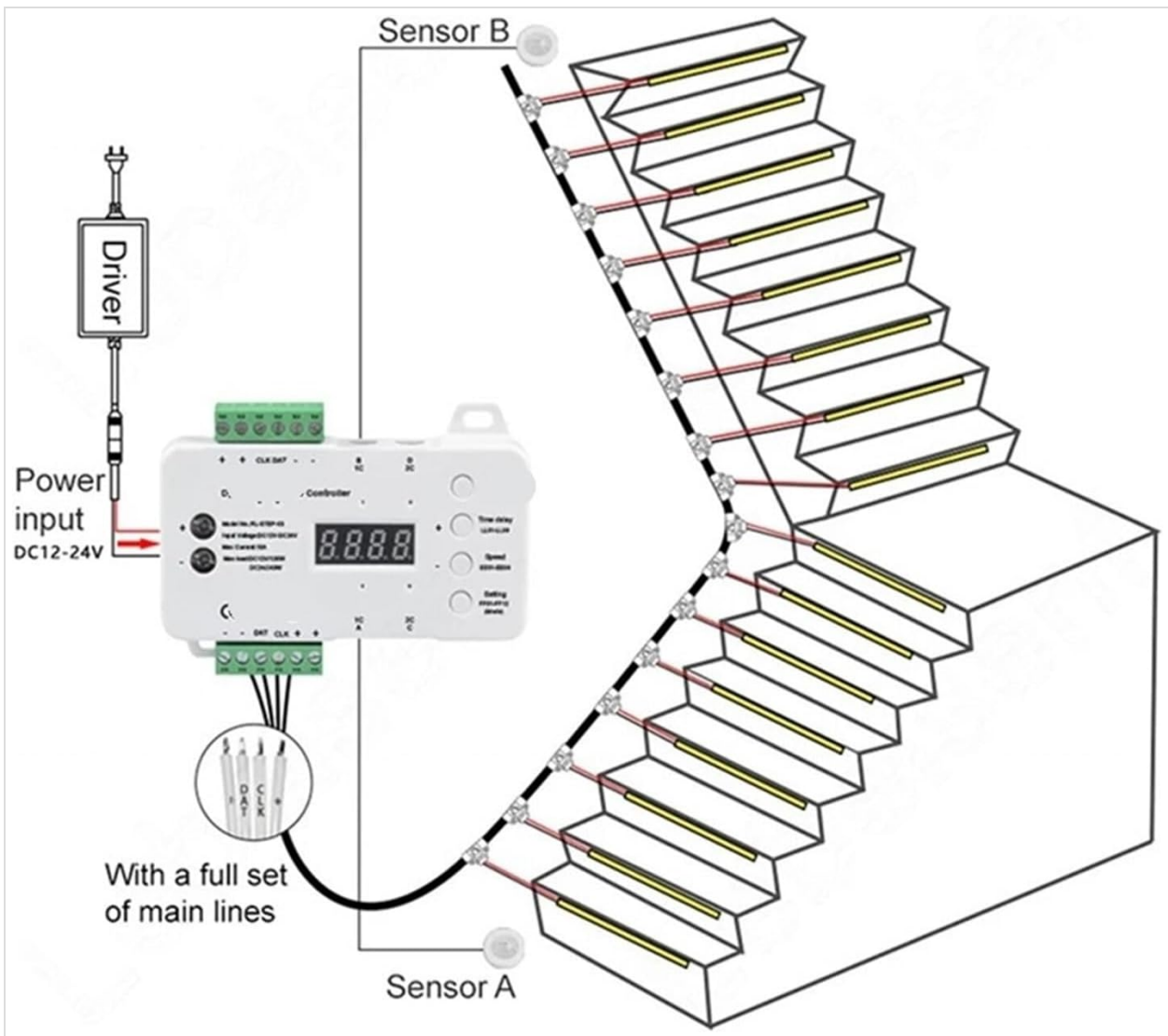
- **Electrical Safety:** Ensure all power is disconnected before performing any installation or wiring. Installation should be performed by a qualified professional if you are unsure.
- **Voltage Compatibility:** This controller operates on DC 12V-24V. Do not connect it to AC power or voltages outside this range.
- **Power Rating:** Do not exceed the maximum total power output of 240W or 15W per single channel. Overloading can cause damage to the controller and connected devices, and may pose a fire hazard.
- **Environment:** Install the controller in a dry environment, away from direct sunlight, moisture, and extreme temperatures.
- **Wiring:** Ensure all wiring connections are secure and correctly polarized (+/-). Loose connections can lead to poor performance or electrical hazards.

## 5. SETUP AND INSTALLATION

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Follow these steps for proper installation of your THKFMSRC RL-STEP-05 Smart Dimming Controller.

### Wiring Diagram:



**Figure 1:** Wiring diagram for the THKFMSRC RL-STEP-05 Smart Dimming Controller. This diagram illustrates the typical wiring configuration, showing the DC 12-24V power input connected to the 'Driver', which then connects to the controller. The controller has terminals for 'Sensor A' and 'Sensor B', which are motion sensors typically placed at the bottom and top of the stairs, respectively. The output from the controller connects to the LED strips installed on each stair step, indicated as 'With a full set of main lines'.

### Installation Steps:

- 1. Prepare Components:** Gather the THKFMSRC RL-STEP-05 controller, a compatible DC 12V-24V power supply (driver), two motion sensors (Sensor A and Sensor B), and your single-color LED strips.
- 2. Mount Controller:** Choose a suitable, dry location to mount the controller, ensuring it is accessible for wiring and adjustments.
- 3. Connect Power Input:** Connect the DC 12V-24V power supply (driver) to the 'Power input DC12-24V' terminals on the controller. Ensure correct polarity (+ to + and - to -).
- 4. Connect Motion Sensors:** Connect Sensor A (typically for the bottom of the stairs) and Sensor B (typically for the top of the stairs) to their respective terminals on the controller. Refer to the diagram for specific sensor input locations.
- 5. Connect LED Strips:** Connect the LED strips for each stair step to the output terminals of the controller. The controller is designed to manage multiple individual LED strips, often referred to as 'main lines'. Ensure each strip is connected with correct polarity.
- 6. Secure Wiring:** Double-check all connections to ensure they are tight and secure. Avoid any exposed wires.

7. **Power On:** Once all connections are verified, connect the power supply to the main power source.

## 6. OPERATING INSTRUCTIONS

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The THKFMSRC RL-STEP-05 controller features a digital display and control buttons for configuration. The display typically shows a 4-digit code (e.g., '8.8.8.8' in the diagram) indicating current settings or status.

### Basic Operation:

- **Automatic Activation:** When a motion sensor (Sensor A or Sensor B) detects movement, the LED strips will illuminate in a sequential pattern, typically from the detected end of the stairs.
- **Dimming:** The controller supports dimming. The intensity of the light can be adjusted through the settings.
- **Delay:** After activation, the lights will remain on for a set 'Time delay' period before gradually dimming off. This delay can be adjusted.
- **Speed:** The 'Speed' setting controls how quickly the lights illuminate or dim, creating a dynamic effect.

### Adjusting Settings:

The controller typically has buttons labeled for 'Time delay', 'Speed', and 'Setting'. Consult the specific button functions on your device to:

- **Adjust Time Delay:** Use the 'Time delay' button or associated controls to increase or decrease the duration the lights stay on after motion detection.
- **Set Speed:** Use the 'Speed' button or controls to modify the animation speed of the lights turning on and off.
- **Access Settings:** The 'Setting' button or similar control allows access to advanced configurations, which may include dimming levels, number of steps, or other operational parameters. Refer to the on-screen display for specific menu options.

## 7. MAINTENANCE

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The THKFMSRC RL-STEP-05 Smart Dimming Controller requires minimal maintenance to ensure long-term performance.

- **Cleaning:** Periodically wipe the controller and sensors with a dry, soft cloth to remove dust. Do not use liquid cleaners or abrasive materials.
- **Inspection:** Regularly check all wiring connections for any signs of loosening or damage. Ensure the power supply is functioning correctly.
- **Environment:** Ensure the installation environment remains dry and free from excessive dust or humidity.

## 8. TROUBLESHOOTING

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If you encounter issues with your THKFMSRC RL-STEP-05 controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Lights do not turn on.	No power to controller. Incorrect wiring. Faulty LED strips. Sensors not detecting motion.	Check power supply connection and output. Verify all wiring connections (power, sensors, LEDs) according to the diagram. Test LED strips independently. Ensure sensors are clear of obstructions and correctly positioned.
Lights flicker or are dim.	Insufficient power supply. Loose connections. Overloaded circuit.	Ensure power supply meets voltage and current requirements. Check all wiring for secure connections. Reduce the number of connected LED strips or use a higher-rated power supply.
Motion sensor not responding.	Sensor obstructed or misaligned. Faulty sensor. Incorrect sensor wiring.	Clear any obstructions and adjust sensor position. Test sensor functionality if possible. Verify sensor wiring to the controller.
Lights stay on constantly.	Continuous motion detection. Incorrect time delay setting. Faulty sensor.	Ensure no constant motion near sensors. Adjust the 'Time delay' setting. Inspect or replace the sensor.

If the problem persists after attempting these solutions, please contact the manufacturer or seller for further assistance.

## 9. WARRANTY AND SUPPORT

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For warranty information, please refer to the documentation provided at the time of purchase or contact your seller directly. THKFMSRC is committed to providing quality products and support. For technical assistance or inquiries, please reach out to the customer service channels provided by your retailer or the manufacturer.