SC Dimmer RGBW A1

User manual [EN]

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General instructions

The controller must be installed and configured by a qualified person. The relevant safety regulations, accident prevention regulations and project requirements must be observed.

Safety instructions

CAUTION!

The device operates from a low-voltage 12-24 V DC supply. The power supply may be connected to mains voltage outside this controller. Work on the controller is allowed only when the power supply is disconnected.

Warning!

- Always switch off the power supply before wiring and verify that the circuit is de-energized.
- Observe the polarity of INPUT + and INPUT -.
- The PCB underside must not touch a metal base or DIN rail.
- Install the device in a suitable enclosure and ensure proper conductor insulation.

Description

SC Dimmer RGBW A1 is a four-channel Spectoda PWM controller for analog RGBW LED strips powered from a 12-24 V DC supply. It uses a common positive LED strip conductor and separately switched negative channels R, G, B and W.

Main features:

- 4 independent PWM outputs for an analog RGBW LED strip,
- 12-24 V DC input voltage,
- 15 A input automotive blade fuse,
- 5 A channel automotive blade fuses,
- status LED, service button and service pin header,
- wireless communication in the Spectoda ecosystem.

Connector interface

Connector	Function	Note
INPUT +	Device power	Positive pole of the 12-24 V DC supply
INPUT -	Reference ground	Negative pole of the supply, common system ground
+	Common LED pole	Common positive conductor of the RGBW LED strip
R / G / B / W	PWM outputs	Switched negative channels of the individual LED strip branches

Technical overview

- Power supply: 12-24 V DC
- Outputs: 4x low-side PWM for R, G, B and W channels
- Maximum current per channel: 5 A
- RGB mode: max. 15 A cumulative across the controller
- RGBW mode: typically max. 10 A
- Fusing: 15 A input blade fuse, 5 A channel blade fuses
- PCB footprint: 71.9 × 53.6 mm
- Recommended enclosure: Spelsberg i 12-L, 85.0 × 85.0 × 37.0 mm

Use and operating modes

SC Dimmer RGBW A1 is intended for analog RGBW LED strips with a common positive conductor. Typical applications:

1. architectural RGB/RGBW LED strips,
2. ambient and decorative LED lighting,
3. panel control of multiple LED branches,
4. installations with local fusing of individual channels.

Installation

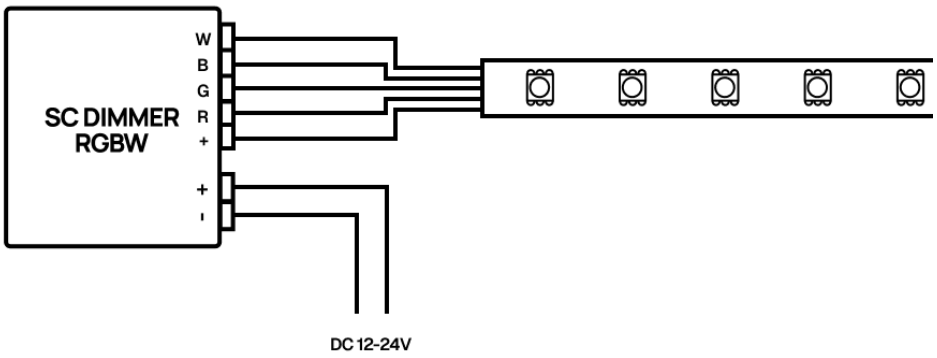
Preparation before installation

1. Verify availability of a 12-24 V DC supply and power reserve according to the actual load.
2. Check that the environment matches the device operating conditions.
3. Plan the current load of individual LED channels and the cumulative controller limit.
4. Prepare insulating standoffs and installation space with service access to the fuses.

Step-by-step installation

1. Disconnect the 12-24 V DC supply.
2. Mount the PCB on insulating standoffs.
3. Connect INPUT + and INPUT -.
4. Connect the common positive LED strip conductor to output +.
5. Connect R, G, B and W according to the actual LED strip branch.
6. Install the 15 A input and 5 A channel blade fuses.
7. After checking polarity and terminal tightening, switch on the power supply.

Wiring diagram - RGBW variant



Operation

Commissioning in the Spectoda ecosystem

1. Add the controller to the project in Spectoda Studio.
2. Perform pairing and basic network configuration.
3. Set the profile for the analog RGBW LED strip and assign R, G, B and W channels.
4. Test control response, color changes, dimming and any scenes.

Recommendations for stable operation:

- Do not exceed the controller cumulative current limit or the limit of individual channels.
- At higher loads, check terminal tightening and leave space for airflow.
- Always disconnect the power supply before any service intervention.

Troubleshooting

Symptom	Possible cause	Recommended solution
Device does not respond	Incorrect or missing 12-24 V DC supply	Check the power supply, INPUT + / INPUT - polarity and terminal tightening
LED strip does not light	Fault in the common positive conductor or channel wiring	Check output + and R, G, B, W channel connections
One channel does not light	Faulty or missing channel fuse	Check the corresponding 5 A blade fuse and LED strip branch wiring
Unstable behavior	Unsuitable power supply, overload or poor contact	Check power supply sizing, current load and terminal tightening

Disposal information

This electrical/electronic equipment is placed on the market in accordance with Act No. 542/2020 Coll., on end-of-life products, as amended.

Ban on disposal in municipal waste
The device is marked with the crossed-out wheeled bin symbol. This symbol means that the product must not be disposed of together with normal municipal waste at the end of its life.

Electrical equipment contains materials that can be recycled, but may also contain substances potentially hazardous to the environment and human health if handled incorrectly.

Take-back and recycling
The user must hand over end-of-life equipment for separate collection. The device can be returned free of charge:

- at the collection yard of the relevant municipality,
- at an electrical equipment take-back point,
- at a shop when buying a new device of a similar type.

The manufacturer fulfils its obligations through an authorized collective system providing collection and recycling of electrical waste.

Batteries and accumulators
If the device is part of an assembly with a battery or accumulator, the battery must be removed before disposal, if possible, and handed over separately at a place designated for collecting used batteries.

Personal data protection
Before handing the device over for recycling or service, we recommend removing it from the project and performing a factory reset, if the installation allows it.

Visualization

All visualizations are available in the Spectoda documentation.