Optonica EV4-D

Optonica EV4-D 4-Channel Power Repeater User Manual

Model: EV4-D

1. Introduction

The Optonica EV4-D is a 4-channel power repeater designed to extend the power capacity of LED controllers. It allows for the control of larger LED installations by amplifying the signal from an existing LED controller, ensuring consistent brightness and performance across all connected LED strips or modules. This device operates with a voltage range of 12-24VDC and supports a maximum current of 20A across its four channels.

Safety Instructions

- Ensure all power connections are made correctly before applying power to the device. Incorrect wiring can cause damage to the repeater or connected LED products.
- This device is designed for indoor use only (IP20 rating). Avoid exposure to moisture, high humidity, or extreme temperatures.
- Do not exceed the maximum input voltage of 24VDC or the maximum output current of 20A (total) / 5A per channel.
- Disconnect power before performing any installation, wiring, or maintenance.
- Ensure proper ventilation around the device to prevent overheating.
- Installation should be performed by a qualified professional if you are unsure about electrical wiring.

2. Product Features

- **Maximum Power Output:** Manages up to 480W across 4 channels, suitable for demanding LED installations.
- **Extended Compatibility:** Operates with 12 to 24VDC systems, compatible with various lighting setups.
- **Enhanced Safety:** Features 3KV isolation and CE certification for reliable and secure operation.
- **Easy Installation:** Compact design (110x64x45 mm) with a robust plastic and aluminum casing.
- **Energy Efficiency:** Optimized power consumption for economical energy management.

3. Specifications

Parameter	Value
Model	EV4-D
Input Voltage	12-24VDC
Output Current	4 x 5A (20A Max)
Output Power	4 x (60-120W) (480W Max)
Channels	4
Isolation	3KV
Dimensions (L x W x H)	110 x 64 x 45 mm
Weight	0.120 kg
Material	Plastic and Aluminum
Protection Rating	IP20 (Indoor use)
Certifications	CE

4. Package Contents

Please check the package for the following items:

- 1x Optonica EV4-D 4-Channel Power Repeater
- 1x User Manual (this document)

5. Setup and Installation

The EV4-D power repeater is designed to be integrated into an existing LED control system. It receives a control signal from an LED controller and amplifies the power to drive a larger number of LED lights.

Image 1: Optonica EV4-D 4-Channel Power Repeater. This image displays the compact design of the repeater, highlighting its input and output terminals for power and signal connections.

Wiring Diagram (General)

The EV4-D has terminals for power input, signal input from the LED controller, and power output to the LED strips. Ensure all connections are secure and polarity is correct (positive to positive, negative to negative).

1. **Power Input (DC IN):** Connect a 12-24VDC power supply to the "DC IN" terminals. Ensure the power supply capacity meets the total power requirements of your LED installation.
2. **Signal Input (DATA IN):** Connect the output signal from your LED controller to the "DATA IN" terminals. Match the channels (e.g., R to R, G to G, B to B, W to W for RGBW systems, or common anode/cathode for single color).
3. **Power Output (LED OUT):** Connect your LED strips or modules to the "LED OUT" terminals. Each channel (CH1, CH2, CH3, CH4) can drive up to 5A. Ensure the total current for all connected LEDs does not exceed 20A.
4. **Grounding:** Ensure proper grounding for all components in your LED system.

Note: *Specific wiring details may vary depending on your LED controller and LED strip type (e.g., common anode or common cathode). Always refer to the wiring instructions of your LED controller and LED strips.*

6. Operating Instructions

The Optonica EV4-D power repeater operates as an amplifier for your existing LED controller. It does not have its own control interface. Once correctly wired, the repeater will automatically amplify the signals it receives from the primary LED controller.

- Ensure the LED controller is powered on and functioning correctly.
- The EV4-D will mirror the dimming, color changes, and mode selections made on your primary LED controller.
- If using multiple repeaters for very large installations, ensure consistent power supply and signal integrity across all units.

7. Maintenance

The Optonica EV4-D power repeater requires minimal maintenance to ensure long-term performance.

- **Cleaning:** Periodically clean the exterior of the device with a soft, dry cloth. Do not use liquid cleaners or solvents.
- **Inspection:** Regularly check all wiring connections to ensure they are secure and free from corrosion or damage.
- **Ventilation:** Ensure that the ventilation openings are not obstructed to allow for proper heat dissipation.
- **Environment:** Keep the device in a dry, dust-free environment within its specified operating temperature range.

8. Troubleshooting

If you encounter issues with your Optonica EV4-D power repeater, refer to the following common troubleshooting steps:

- **No Power to LEDs:**
  - Check the power supply connection to the EV4-D. Ensure it is securely connected and providing the correct voltage (12-24VDC).
  - Verify the power supply itself is functional.
  - Check the connections from the EV4-D to the LED strips. Ensure correct polarity and secure connections.
- **LEDs Not Responding to Controller:**
  - Ensure the signal input from the LED controller to the EV4-D is correctly wired and secure.
  - Verify that the LED controller itself is functioning correctly and sending a signal.
  - Check for any breaks or damage in the signal cables.
- **Flickering or Inconsistent LED Brightness:**
  - Ensure the power supply is adequate for the total load of the connected LEDs. An undersized power supply can cause flickering.
  - Check for loose connections at both the input and output terminals of the EV4-D.
  - Verify that the LED strips themselves are not faulty.
- **Overheating:**
  - Ensure the device is not enclosed in a way that restricts airflow.
  - Verify that the total current drawn by the LEDs does not exceed the 20A maximum capacity of the repeater.

If these steps do not resolve the issue, please contact customer support.

9. Warranty and Support

The Optonica EV4-D Power Repeater comes with a **2-year warranty** from the date of purchase, covering defects in materials and workmanship under normal use. This warranty does not cover damage caused by improper installation, misuse, unauthorized modifications, or external factors such as power surges.

For technical support, warranty claims, or further assistance, please contact your retailer or Optonica customer service through their official website or contact channels. Please have your purchase receipt and product model number (EV4-D) ready when contacting support.

Contact Information:

Website: www.optonica.com (Example, replace with actual if known)

Email: support@optonica.com (Example)