Artistic Licence

Rail-Contact

User Guide

Please read these instructions before using the product.

This product has been designed & manufactured for professional use only.
It should only be installed by a suitably qualified technician and in accordance with electrical regulations in the country of use.

Unless directed in the instructions there are no user serviceable parts inside the outer case of this product.

Always disconnect from the power supply when not in use.

Any specific IP rating, where appropriate, is given in the instructions. Unless otherwise stated this product is designed for indoor use only. If used outdoors it MUST be installed in an appropriate IP rated cabinet. Do not allow this product to be exposed to rain or moisture. Do not allow liquid to penetrate the product.
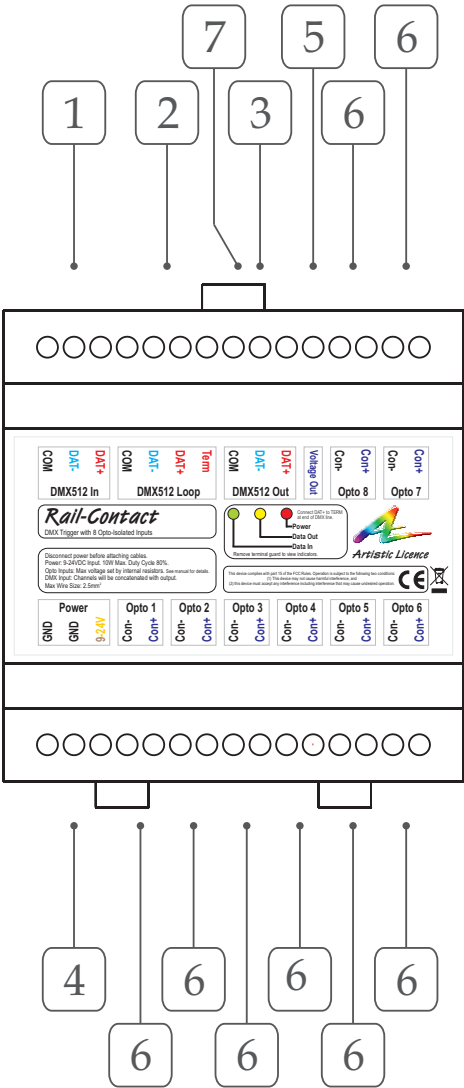
Please recycle all packaging.

Download the user guide by scanning the following QR code:

Connections

Reference	Type	Description
1	Connection	DMX512 Input
2	Connection	DMX512 Loop**
3	Connection	DMX512 Output
4	Connection	Power Input
5	Connection	Voltage Output
6	Connection	Opto Inputs
7	LED	Power / Data indicators

** A passive loop-through connection allows onward connection to other DMX512 devices. If this feature is not required then the signal must be terminated. The product contains an internal termination resistor. This is enabled by fitting a wire link between Term and DAT+.

Mounting Diagram
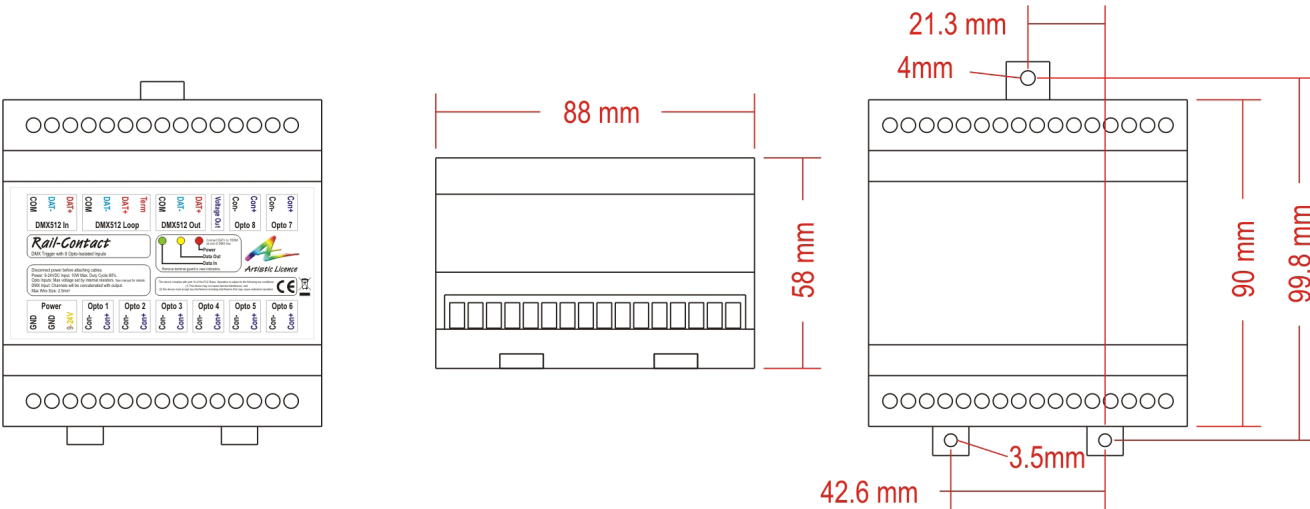
DMX512 Wiring

XLR Pin (Convention)	Function	Colour
1	Ground	**Black**
2	Data -	**Blue**
3	Data +	**Red**

Internal Earth and Isolation

Circuit	Description	
DMX512 Input (including Loop through)	Type:	Non-isolated
	Pin 1:	Connects to Internal Logic Ground
DMX512 Output	Ground referenced	
Contact Closures	Opto-Isolated	
Internal Logic Ground	Connects to Ground Power Input	

Overview

Rail-Contact is a DIN-rail mounted device that provides 8 contact closure inputs whose state can be translated into a DMX512 value. This enables a DMX512 controller to be triggered by switches such as pressure mats. Rail-Contact provides a useful solution for architectural or entertainment applications that require interactive lighting systems.

If more than 8 channels are required then two Rail-Contacts can be linked together to form a 16-channel device.

The product is powered via an external DC power supply unit.

Summary of Key Features

- 8 opto-isolated contact closures
- 8-channels of DMX512 triggering
- Units can be linked to provide 16 trigger channels
- Inputs are fully opto-isolated
- Voltage output for easy connection
- LED indication for data in/out & power
- DIN-rail or surface mount

Operation

Rail-Contact monitors the state of the 8 contact closures and translates this into a value on DMX channels 1 to 8. When a contact closure is active the corresponding value is DMX is 255.

If two Rail-Contact units are linked in series, the first 8 channels are re-patched to channels 9 to 16.

It is expected that in normal usage, the opto-isolated inputs will be used to provide protection from electrical noise arising from long cable distances to powered equipment (see Figure 1 in 'Wiring Diagrams').

However, Rail-Contact also provides a voltage output which can be used when connecting to local volt-free items - such as switches (see Figure 2 in 'Wiring Diagrams' and 'Voltage Output' in the 'Connections' section).

Contact Closures

The 8 contact closure inputs each have 2 terminals labelled Con+ and Con-. Internally, these connect to the LED of an opto-isolator via a current limit resistor.

The current limit resistor is set to limit current to the range 10 - 17 mA over a range of input voltages of 9 - 24 VDC.

When the voltage is applied, current flows through the opto-isolator and a full (255) DMX level is transmitted on the associated DMX output channel.

Connections

Please refer to the connections diagram.

The contact closures are attached via eight 2-pin screw terminals.

DMX512 Output

The DMX512 output is attached via a 3-pin screw terminal.

DMX512 Input & Loop-Through

If two Rail-Contact units are connected together to provide 16 channels of triggering, the DMX output from the first unit should be connected to the DMX input of the second unit.

A passive loop-through connection allows onward connection to other DMX512 devices. If this feature is not required then the signal must be terminated. The product contains an internal termination resistor. This is enabled by fitting a wire link between the screw terminals that will terminate the DMX line (Term and DAT+).

Voltage Output

The single-pin screw terminal voltage output allows easy connection. The voltage output pin will be the same voltage as the power input. It is current limited to 250 mA by an electronic auto-resetting fuse.

It can be used as the positive supply to the opto-isolator inputs if the isolation feature is not required.

Power

Rail-Contact is be powered from an external DC power supply (9-24 VDC). It is recommended that a ferrite core be fitted onto the DC power lines as close as possible to the Rail-Contact. This protects the unit from any electrical spikes that appear on the DC line.
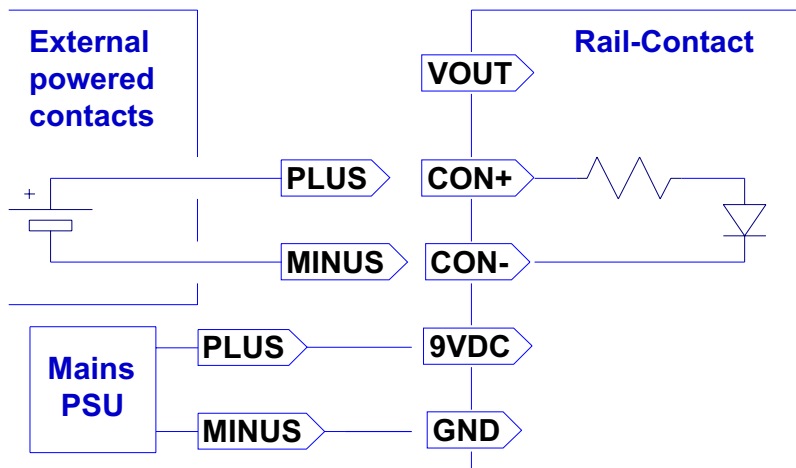
LED Indication

Rail-Contact has LED indicators under the terminal guard for data in (green), data out (yellow) and power (red).
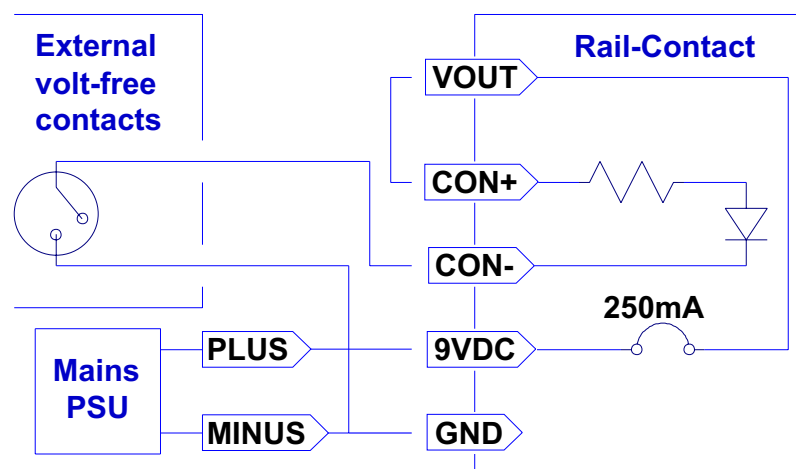
Wiring Diagrams

Figure 1

The example shows the wiring when Rail-Contact is used in isolated mode.

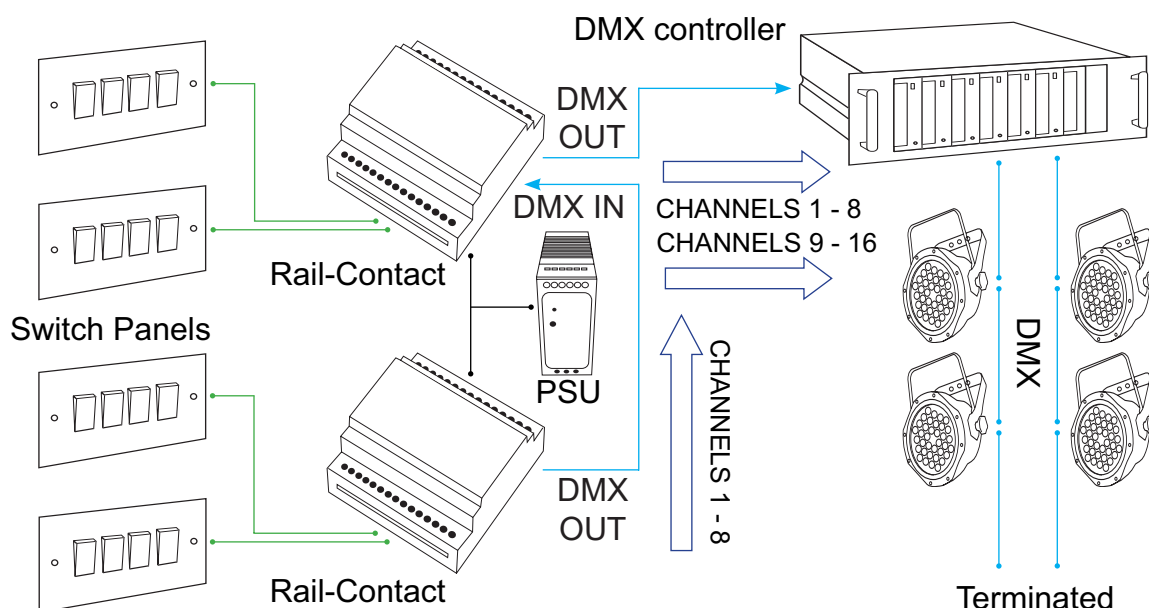## Figure 2

The example shows the wiring when Rail-Contact is used in non-isolated mode.

Application Diagram

The diagram below shows how Rail-Contact could be utilised in a typical application. In this example, two Rail-Contact units are linked together to provide 16 trigger channels for a DMX controller. The first 8 channels are re-patched to channels 9 -16.

Rail-Contact Specification

Mechanical

- Housing: DIN Rail Case
- Material: Lexan plastic, UL94-V0 rated
- Overall dimensions: 90 mm (H) x 88 mm (W) x 58 mm (D)
- Weight: 0.2 kg
- Mounting: 35 mm DIN Rail or Surface Mount
- Country of manufacture: UK

Environmental

- Operating temperature: 0°C to 40°C
- Storage temperature: -10°C to +50°C
- Operating relative humidity (max): 80% non-condensing
- IP rating: IP20 indoor use only
- Certification: CE, WEEE, RoHS
- Warranty: 2-year (return to base)

Power & Electrical

- Input voltage: 9-24 VDC
- Input connector: 3-pin screw terminal (1 no.)
- Output connector: 1-pin screw terminal (1 no.) (current limited to 250 mA)
- Input power (max): 10 W
- Duty cycle: 80% @ 25°C
- DC fuse: internal resettable fuse for control electronics

DMX512 input/output

- Protocols: DMX512, DMX512(1990), DMX512-A
- Input mode: non-isolated
- Input ESD protection: 12 kV
- Input voltage protection: +/- 80 V
- Output mode: ground referenced
- Output ESD protection: 2 kV

Contact closures

- Type: 8 x opto-isolated contacts
- Connectors: 2-pin screw terminals (8 no.)
- Input isolation: 1 kV

Data Connection

- 3-pin Screw Terminal DMX Input (1 no.)
- 4-pin Screw Terminal DMX Loop / Term (1 no.)
- 3-pin Screw Terminal DMX Output (1 no.)

LED Indication

- Power / DMX in / DMX out

Package Contents

- Rail-Contact
- User guide

Ordering Info

- Product code: Rail-Contact

Accessories (not included)

- PSU-9-1.5-FER

Compliance

All Products manufactured or sold by Artistic Licence Engineering Ltd are fully compliant with the appropriate CE, FCC, and RoHS regulations. Product specific information is available on request.

Waste Electrical & Electronic Equipment (WEEE)

Artistic Licence is a member of a WEEE compliance scheme and will happily recycle any of our products that you, at your expense, return to us.

CE Compliance C€

Rail-Contact is CE compliant when installed in a shielded and earthed metal case

Warranty

All products are covered from date of purchase by a two-year return to base warranty.

By return to base, we mean that the customer is responsible for all costs of transport to and from Artistic Licence.

Returns will not be accepted without prior authorisation. In order to discuss a request to return goods, please email:

Sales@ArtisticLicence.com

Artistic Licence
Studio 1, Spectrum House
32-34 Gordon House Road
London
NW5 1LP
United Kingdom

Telephone   +44 (0) 20 8863 4515
Fax   +44 (0) 20 8426 0551
Email: Sales@ArtisticLicence.com
Web: www.ArtisticLicence.com

Customer support and knowledge base:
www.ArtisticLicence.com/support.html

Due to our policy of continuing product improvement specifications are subject to change without notice