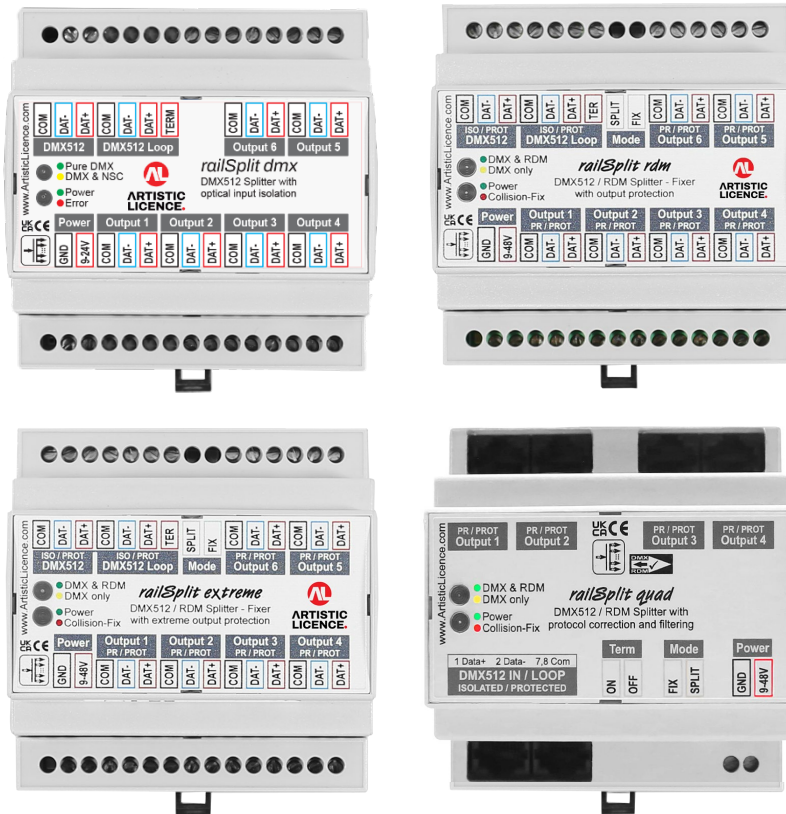




railSplit dmX, rdm, quad & extreme

User Guide

General information

Safety Information

PLEASE READ THESE INSTRUCTIONS BEFORE USING THE PRODUCT

CAUTION



TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, do not allow this product to be exposed to rain or moisture. Do not allow liquid to penetrate the product.

CAUTION



Unless directed in the instructions, there are no user serviceable parts inside. REFER SERVICING TO QUALIFIED SERVICE PERSONEL.

Compliance

European Community Compliance Statement

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

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.



DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications may void your authority, granted by the FCC, to use the product.

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warranty

Unless otherwise stated this product is covered by a 5-year limited warranty. The first 2 years include both parts and labour. Warranty is return-to-base, meaning the product must be returned to Artistic Licence Engineering Ltd for repair. Customers are responsible for all shipping costs associated with returning the product.

Please note that the warranty is void if the product is misused, damaged due to improper handling, or modified in any way.

For full details, please refer to our comprehensive warranty policy at www.artisticlicence.com

Returns under warranty

To discuss a fault please contact support@artisticlicence.com, if it is ascertained that a fault requiring further investigation or repair is necessary an RMA (Return Merchandise Authorisation) number will be provided. This number must be clearly marked on the outside of the box containing the product being returned.

Shipping

To ensure safe transit, all products must be securely packaged using the original packaging or equivalent protective materials. Improper packaging may result in additional repair costs or void the warranty.

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Overview

The *railSplit DMX*, *railSplit RDM* and *railSplit extreme* are six output DMX splitters and distribution amplifiers. The *railSplit quad* and *railSplit quad extreme* are four output DMX splitter and distribution amplifiers.

railSplit DMX is uni-directional, allowing connection to DMX only fixtures, or for use where RDM is not required. Any RDM or non-zero start code data received on the input will be removed.

railSplit RDM and *railSplit extreme* are fully bi-directional, and feature electrocution protection (self-healing) on the input, loop and all outputs (up to 425 VAC). Both products have the added feature of a 'Fix Mode' for DMX which is used to resolve flickering problems arising from product incompatibilities - see configuration for more information.

Extreme versions of the products additionally provide sacrificial surge protection up to 30,000A. This feature is aimed at protecting the product and connected equipment, such as lighting consoles, against voltage surges of the type generated by lightning, which is particularly important in outdoor architectural lighting systems.

Installation

DIN rail Mounting

railSplit devices are designed to be installed inside a suitable DIN rail enclosure.

- Step 1. 'Hook' the device on to the top of the DIN rail.
- Step 2. Clip the device on to the bottom rail by applying gentle pressure to the lower half of the device. The unit should engage its sprung tab(s) with a 'click'.

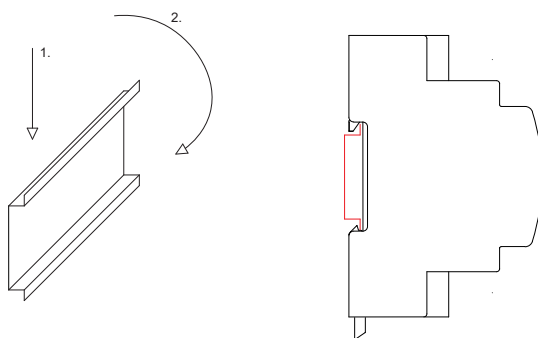


Fig.1

These products have been designed for professional use only. They should only be installed by a suitably qualified person and in accordance with the electrical regulations in the country of use.

LED indicators

railSplit devices have two LED indicators, each providing information to the installer or user as to its status.

INDICATOR	COLOUR	STATE	MEANING
RAILSPLIT DMX DATA	Green	On	Unit is receiving DMX & RDM data
	Yellow	On	Unit is receiving DMX data only
		Off	No input communication
POWER	Green	On	Device powered and working normally
	Red	On	Errors detected
RAILSPLIT RDM & EXTREME			
DATA	Green	On	Unit is receiving DMX & RDM data
	Yellow	On	Unit is receiving DMX data only
		Off	No input communication
POWER	Green	On	Device is powered and working normally
	Red	On	Data collision or device in Fix mode

Connections

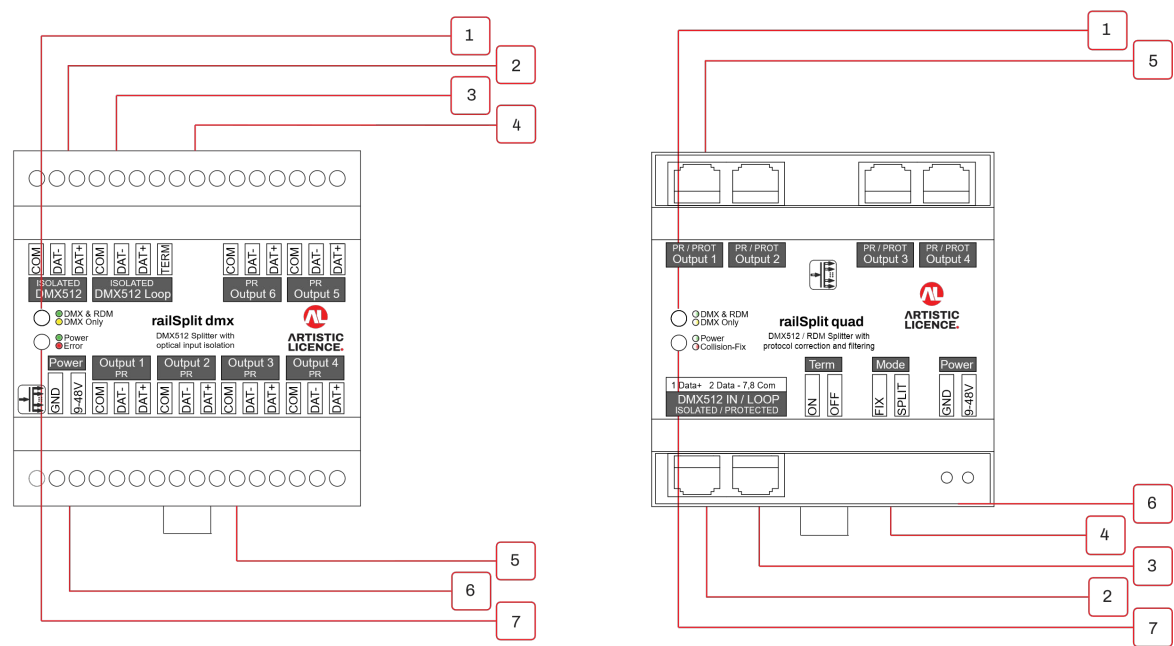


Fig .2

REFERENCE	DESCRIPTION
1	Status LED
2	DMX Input
3	DMX Loop
4	Fix/Split switch location – not on railSwitch DMX
5	DMX Outputs
6	Power Terminal In/Loop
7	Power LED

Internal Earth and Isolation

The following table summarises the internal signal's common interconnection and isolation.

REFERENCE	DESCRIPTION	
DMX512 Input (Including Loop through)	Type	Optically Isolated
	Pin 1:	Connects to Internal isolated circuit. No connection to Internal Logic Ground
DMX512 Outputs	Type	PSU referenced
	Pin 1:	Connected to Internal Logic Ground
Internal Logic Ground	Connected to power supply 0V. If the selected PSU has a connection between Earth-Ground and 0V the DMX outputs become Ground Referenced. Otherwise, the DMX outputs are Floating. When the recommended PSU is used, DMX outputs are Floating.	

Device protection

Input

All railSplit variants feature optical input isolation of up to 1kV with additional ESD protection for the device of up to 15kV.

The input and loop connections feature electrocution protection against continuous connection to 425VAC which is self-healing on removal of the fault.

Power supply input has an auto resetting 500mA fuse for the internal control electronics.

Output

All railSplit variants have ESD protection of up to 15kV on all six outputs, as well as electrocution protection against continuous connection to 425VAC; this is self-healing on removal of the fault.

All outputs have over voltage protection of +/- 10 V.

railSplit extreme employs further input and output sacrificial surge protection against lightning strike events.

- IDC 30,000A (8/20uS) 1 operation
- IDC 20,000A (8/20uS) 10 operations
- IDC 20A (10/1000uS) 1500 operations

Powering the device

railSplit devices are powered via an external 9-48V DC power supply, connected via a 2-pin screw terminal. (For power requirements see the device data sheet)

As the product is normally installed alongside other devices, one power supply can be used to power multiple devices. Please ensure the selected power supply has sufficient capacity to power all connected device(s) and that the polarity of the connections is observed.

1. To power the device, first connect the power supply, only energise the power supply once all connections are made.
2. To power off the device simply de-energise the power supply.

Connections to DMX

XLR PINS (CONVENTION)	FUNCTION	COLOUR
1	Ground	Black
2	Data -	Blue
3	Data +	Red
RJ45 PINS	FUNCTION	COLOUR
7&8	Ground	Brown/White Brown
2	Data -	Orange
1	Data +	White/Orange

DMX Output

railSplit dmx, rdm and extreme have six DMX outputs provided via 3-pin screw terminals, supporting 32 additional devices per output.

railSplit quad & quad extreme have four DMX outputs provided via RJ45 connectors, supporting 32 additional devices per output.

It is not necessary to terminate any outputs that are not connected. However, a line containing one or more devices a terminator must be connected to the final DMX device.

DMX Input & Loop-Through

A passive loop-through connection allows onward connection to other DMX devices. If this feature is not required, then the signal must be terminated.

Termination

This 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+).

Configuration

Device Setup

railSplit dmx requires no configuration. Just connect a power supply, input and output DMX lines and the device is ready to use.

railSplit rdm and *railSplit extreme* feature two modes of operation selectable via a switch. In the default mode, both products are a fully featured RDM Splitter. In the second fix mode, it acts as a DMX Fixer. Please see LED indicators section for LED status descriptions.

Splitter Mode

In splitter mode, all six outputs operate as bi-directional RDM ports and all DMX data received is passed onto the outputs.

Fix Mode

Fix mode is intended to solve product compatibility problems. Unfortunately, there are numerous products on the market which will not accept the wide range of standardised DMX timings and data. Fix mode attempts to clean-out any unusual or non-standard timing and data before sending to the output. This includes stripping out all non-zero start codes (including RDM), forcing a 512-channel footprint and calming any timing jitter.

Detailed Fix Specification

Accepts and corrects break in range 56 μ s – 1000 μ s and outputs 250 μ s

Accepts and corrects MaB in range 5 μ s – 1000 μ s and outputs 30 μ s

Accepts and corrects MaB in range 0 μ s – 1000 μ s and outputs 30 μ s

Accepts channel count 1 – 512 and outputs 512

Accepts refresh period from 23 ms – 1000 ms and outputs 30ms

Filters out multiple consecutive breaks

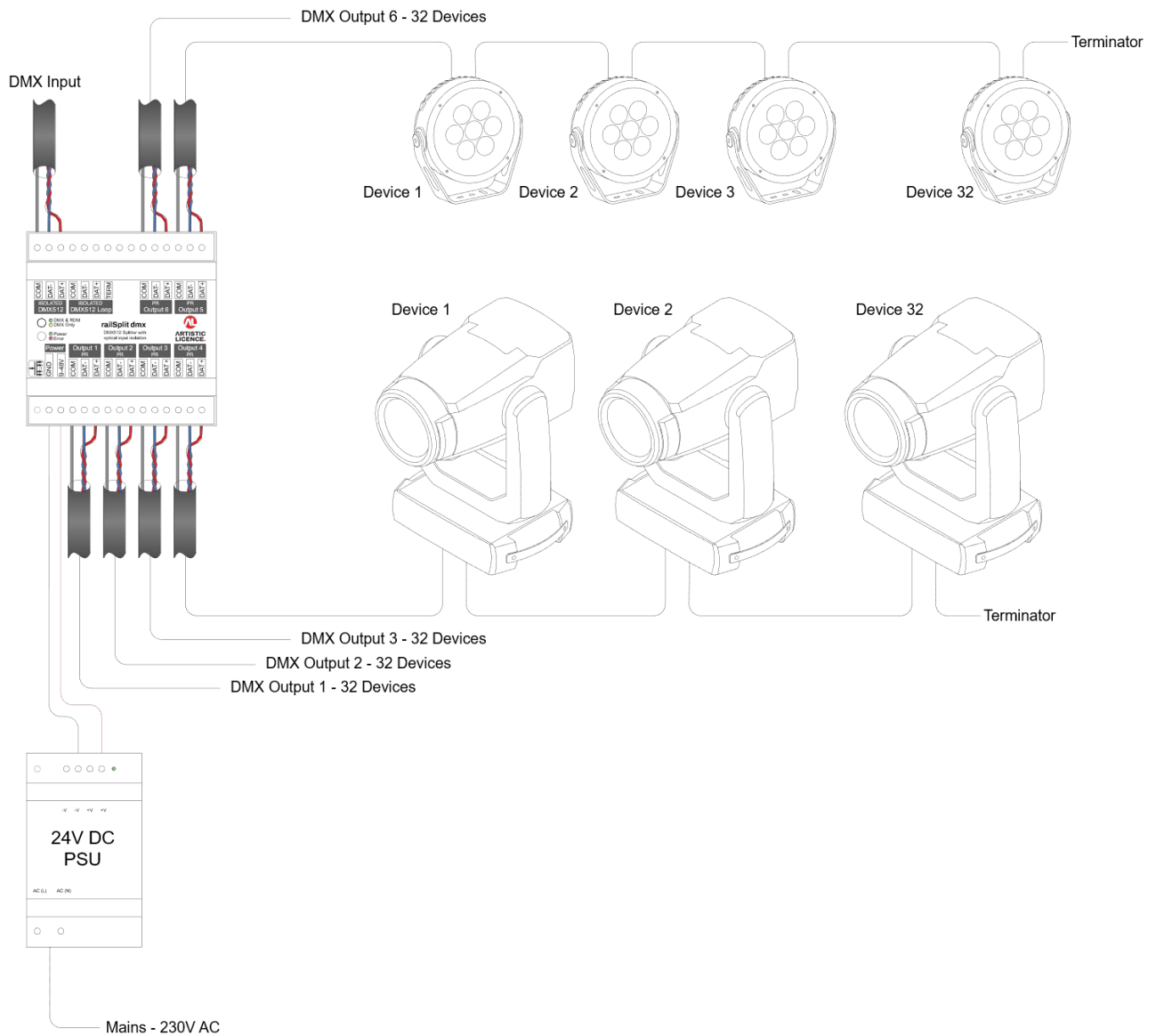
Re-times bytes of 1 stop bit to 2 stop bits

Filters out all non-zero start code packets

Re-times digital signal

Application Diagram

The diagram below shows how a railSplit could be utilised in a typical application.



Troubleshooting

OBSERVATION	DESCRIPTION
Power LED is not illuminated	Check the power supply to the unit is within the specified voltage range and is energised.
	Check the polarity of the connection to the railSplit. The device is polarity sensitive.
Power LED inconsistent	The power LED should be static Red or Green, if it is not, please check the external power supply voltage and ensure it has at least 8W available to power the railSplit.
RDM information for connected devices cannot be seen by lighting controller	<i>railSplit dmx</i> is not suitable for use with RDM devices. <i>railSplit dmx</i> will remove RDM and only allow passage of DMX data. Please use <i>railSplit rdm</i> or <i>railSplit extreme</i> where RDM is required.
	Verify <i>railSplit rdm</i> and <i>railSplit extreme</i> have the mode switch set to Split. RDM data will be filtered out in Fix mode.
	Ensure a terminating resistor is used on the final device on a DMX line to avoid signal reflections.
Unresponsive DMX devices	Check that the data LED is illuminated, indicating the railSplit is receiving DMX and/ or RDM data. If it is not, verify correct wiring connections and that DMX data is being transmitted on the correct universe.
	Check that the railSplit is powered on. If the device is not powered on, DMX data cannot be split via the outputs but will instead be output on the loop terminals.
	If the power LED is illuminated Red, this indicates data corruption on the input, or one of the connected outputs of the railSplit.
	Disconnect all output wiring, if the power LED returns to green in colour, then it is advisable to inspect the outgoing DMX lines and connected devices for faults.
	If the power LED is red with no outputs connected, this indicates data corruption being received on the input. Check DMX wiring and lighting controller settings. Note: The power LED will illuminate red during operation on the <i>railSplit rdm</i> and <i>railSplit extreme</i> models if Fix mode is selected. This is normal behaviour, and indicates Fix mode is active.
<i>railSplit extreme</i> as part of an installation hit by lightning	If an installation containing a <i>railSplit extreme</i> is hit by lightning the product may stop working. If a lightning strike is of sufficient current, the onboard sacrificial protection may have operated, which will help protect upstream and/ or downstream devices from damage. This sacrificial protection is not user replaceable, contact Artistic Licence for service.

For additional support please visit www.artisticlicence.com or contact support@artisticlicence.com