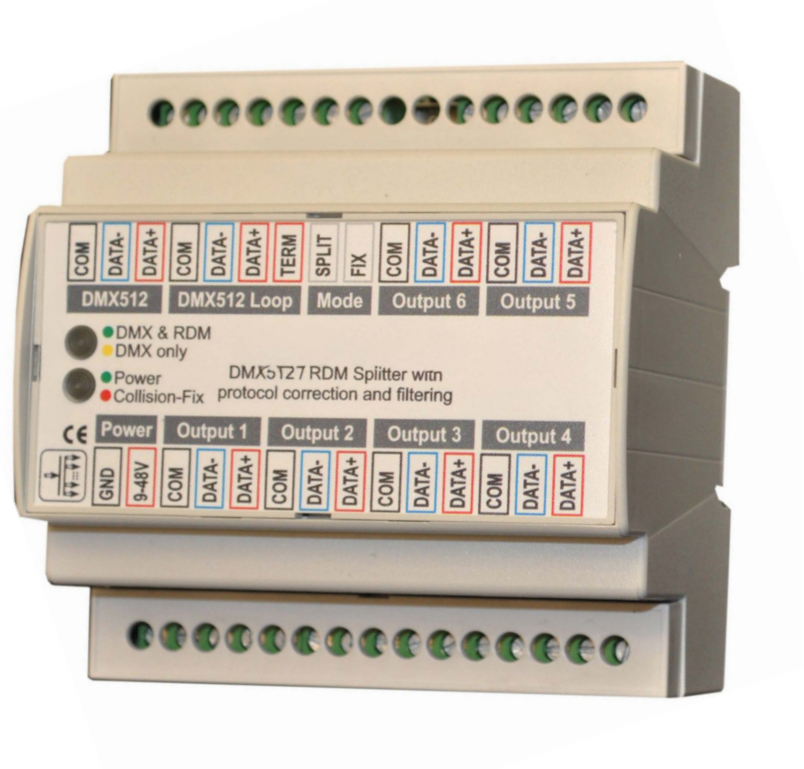



# LED3*DMX-RDM-SPLIT-6-EXTREM

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.

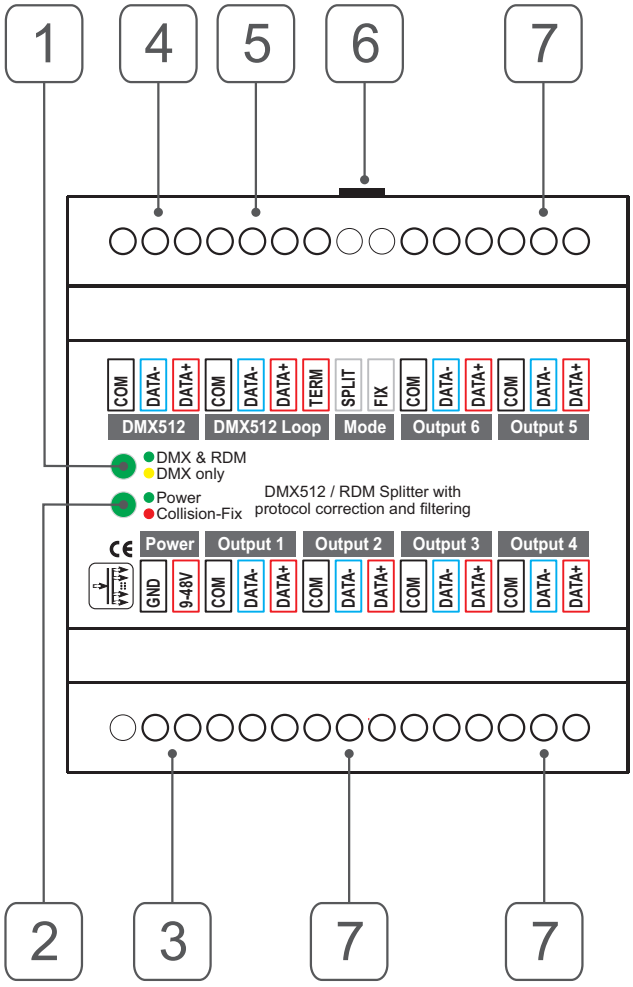
Unless directed in the instructions there are no user serviceable parts inside the outer case of this product.

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.

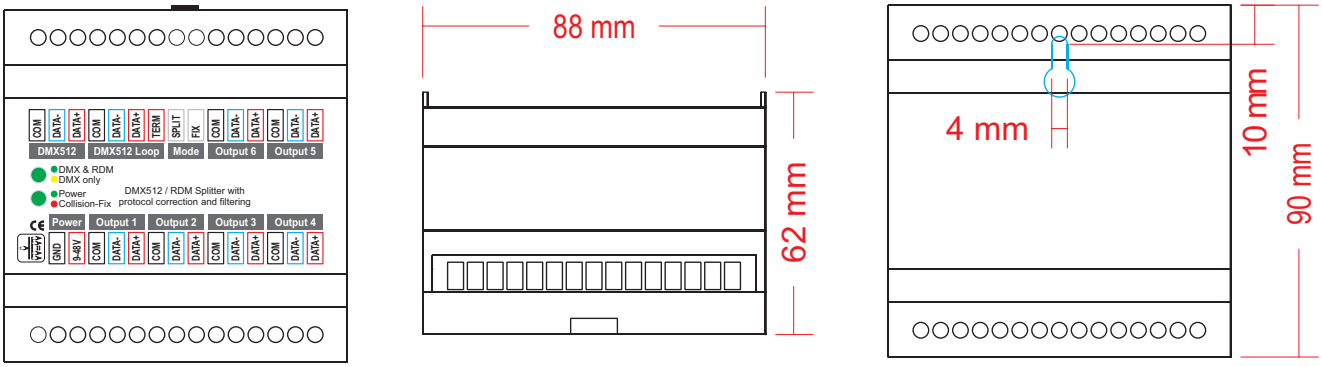
# Connections




| Reference | Type | Description |
|---|---|---|
| 1 | LED | Data Good |
| 2 | LED | Power / Fix |
| 3 | Connection | Power Input |
| 4 | Connection | DMX512 Input |
| 5 | Connection | DMX512 Loop & Term** |
| 6 | Switch | Split / Fix Mode |
| 7 | Connection | Splitter Outputs |

** 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** |

# Overview

LED3-DMX-SPLIT-6-EXTREM is a fully bi-directional DMX512 splitter and distribution amplifier, with the added feature of a ‘data fixer’ for DMX. The latter functionality is used for resolving flickering problems arising from product incompatibility issues - see ‘Fixer Mode’ on page 6 for more information.

LED3-DMX-SPLIT-6-EXTREM offers greater protection from harsh conditions and electrically noisy environments.

LED3-DMX-SPLIT-6-EXTREM is fitted with DMX drivers capable of withstanding +/- 80V output shorts and 12 kV static discharge.

## Key features

- Input Optical Isolation
- Six independent outputs
- Bi-directional outputs
- RDM (Remote Device Management Draft & Standard V1.0)
- DMX512-A compatible
- Microprocessor controlled
- Surface mount or DIN rail mounted
- DMX-Fix mode to handle compatibility issues

## Connections

### Input

The DMX512 input is attached via three screw terminals. Please refer to the connections diagram.

### Loop-Through

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+).

### Output

Six DMX512 outputs are provided. Each output is capable of driving 32 additional DMX512 devices. It is not necessary to terminate any outputs that are not connected. However, a terminator must be connected to the final DMX512 device.

## Internal Earth and Isolation

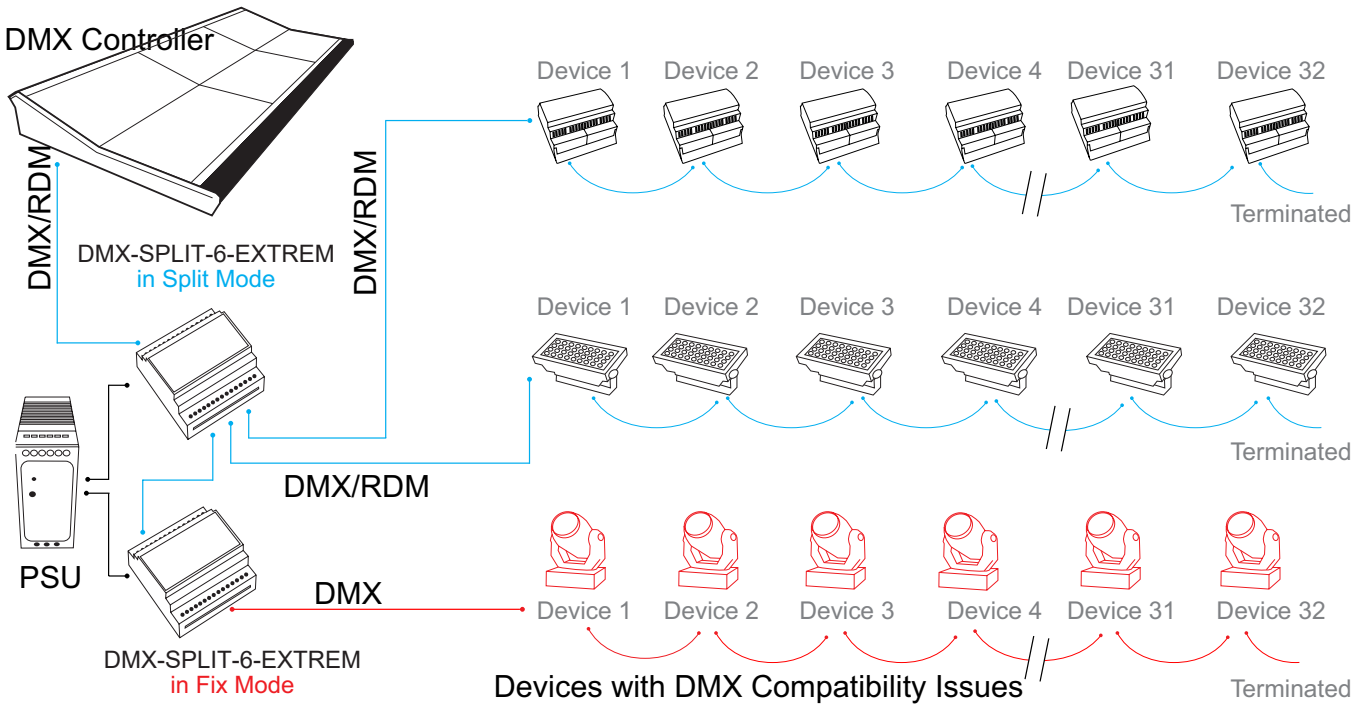
The following table summarises the internal earth interconnection and isolation.

Please note that we use the term Earth-Ground to avoid international confusion. In Europe Earth-Ground is called Earth; in the USA, Earth-Ground is called Ground.

| Circuit | Description | |
|---|---|---|
| DMX512 Input (including Loop Through) | Type: | Isolated |
| | Pin 1: | Connects to internal isolated circuit. No connection to Internal Logic Ground |
| DMX512 Outputs | Type: | Ground referenced |
| | Pin 1: | Connected to Internal Logic Ground |
| Internal Logic Ground | Connects to Ground Power Input | |

## Application Diagram

The diagram below shows how LED3*DMX-SPLIT-6-EXTREM could be utilised in a typical application.



# Operating Modes

The product can operate in two modes. In its default mode, the product is a fully-featured RDM Splitter. In the second mode, it acts as a DMX Fixer.

## Splitter Mode

In splitter mode, all six outputs operate as bi-directional RDM ports and all DMX data received is passed onto the outputs. The indicators have the following meaning:

### Top (Data):

OFF = no data received

Green = DMX and RDM received

Yellow = DMX only received

### Bottom (Power):

Green = Power

Red = Data error or collisions detected

## Fixer Mode

Fixer mode is intended to solve product compatibility problems. Unfortunately, there are numerous products on the market which will not accept the wide range of legal DMX timings and data. Fixer 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. Indicators have the following meaning:

### Top (Data):

As above

### Bottom (Power):

Green = Power

Red = I am fixing something

### Detailed Fix Specification

Accepts and corrects break in range 56 µs – 1000 µs and outputs 250 µs

Accepts and corrects MaB in range 5 µs – 1000 µs and outputs 30 µs

Accepts and corrects MaB in range 0 µs – 1000 µs and outputs 30 µs

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

# LED3*DMX-SPLIT-6-EXTREM Speci ication

### Mechanical

- Housing: DIN rail case
- Material: Lexan Plastic - UL94-V0 rated
- Overall dimensions: 90 mm (H) x 88 mm (W) x 62 mm (D)
- Weight: 0.25 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: 9-48 VDC
- Input connector: 2-pin screw terminal (1 no.)
- Input power (max): 8 W
- Duty cycle: 80% @ 25°C
- DC fuse: internal resettable fuse for control electronics

### DMX512 Outputs

- Output mode: ground referenced
- Output ESD protection: 12 kV
- Output voltage protection: +/- 80 V

### DMX512 Input

- Input mode: Optically isolated
- Input isolation: 1 kV
- Input ESD protection: 12 kV
- Input voltage protection: +/- 80 V

### Control

- Input Protocols: DMX512, DMX512 (1990), DMX512-A, RDM V1.0 (E1.20 - 2006 ESTA Standard)
- Output Protocols: Same as input

### Data Connections

- 3-pin Screw Terminal DMX Input (1 no.)
- 3-pin Screw Terminal DMX Loop (1 no.)
- 3-pin Screw Terminal DMX Output (6 no.)

### LED Indication

- Power / DMX / RDM

### Package Contents

- LED3*DMX-SPLIT-6-EXTREM
- User guide

### Ordering Info

- Product code: Rail-Split RDM

### Accessories (not included)

- PSU-9-1.5-FER

## 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 LED3.

### CE Compliance

CE compliant when installed in a shielded and earthed metal case

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