

Rail-DALI User Guide

(Version 1)

Rail-DALI is a 256 channel DMX / DALI interface. It will convert 256 channels from either DMX to DALI or DALI to DMX. Using the unique features of intelligent DALI and RDM it allows system information from the fixtures back to the controller.

Key Features include:

- ❑ Four independent DALI bus circuits
- ❑ Bi-directional data
- ❑ 256 channel conversion
- ❑ 8Hz (min) DALI Refresh rate (64 channel mode)
- ❑ RDM (Remote Device Management Draft V1.0)
- ❑ DMX512-A compatible
- ❑ Microprocessor controlled
- ❑ Surface mount or DIN rail mounted
- ❑ User configurable:
 - DMX to DALI / DALI to DMX Converter
 - Simple / Intelligent Mode
 - Channel count

Specification:

Input Voltage: 5V DC & 9V - 24V DC
 Maximum Power: 1W
 Internal Fuse: 500mA Electronic fuse
 Dimensions: W:88 H:90 D:58mm
 Mounting: DIN Rail or surface mount
 IP: Indoor use only
 Listings: CE, FCC
 Operation Mode: DMX to DALI or DALI to DMX
 Factory Default: DMX to DALI mode

Power Supply Options: *(order separately)*

PSU-5-4-FER
 Output: 5V 4A
 Input: Auto-sensing
 Max Rail-DALI's: 2
 Listing: CE / FCC / UL / PSE

PSU-9-2-FER
 Output: 9V 2A
 Input: Auto-sensing
 Max Rail-DALI's: 1
 Listing: CE / FCC / UL / PSE

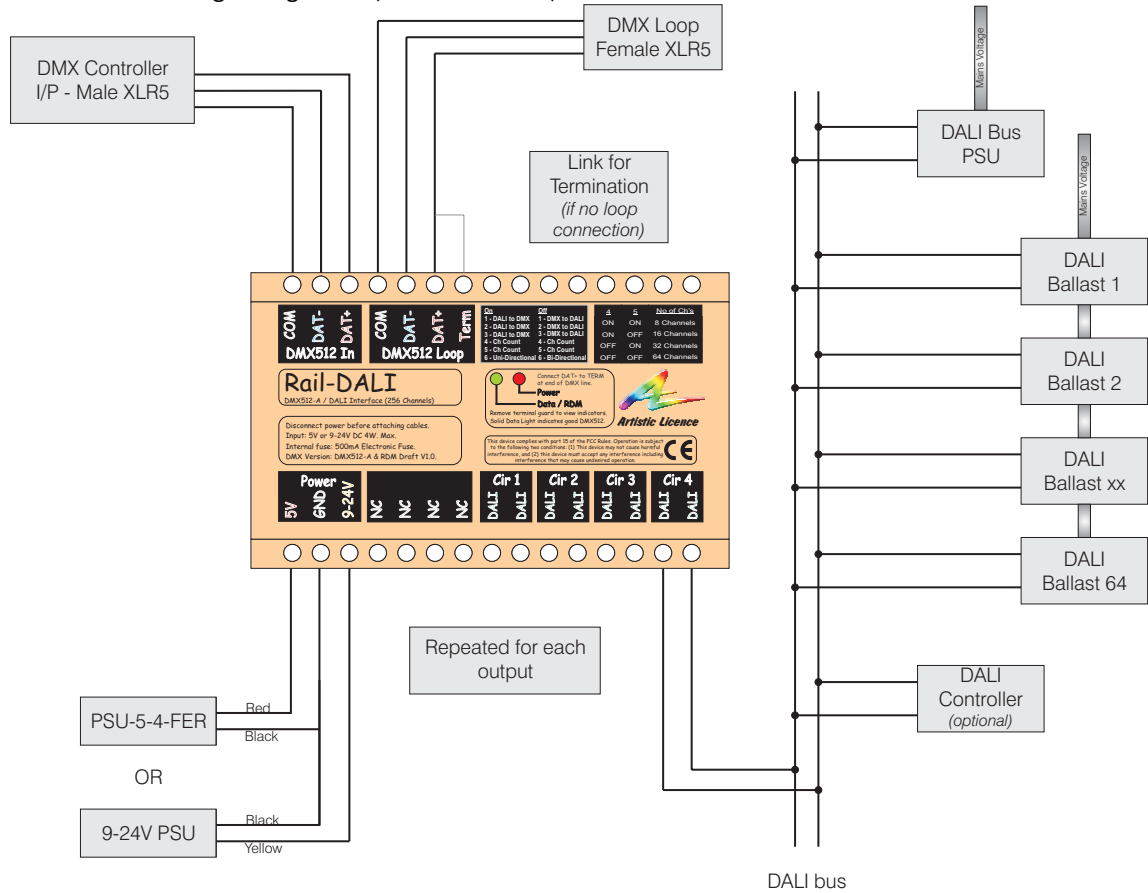


Refresh Rates on DALI: *(estimated)*

| Channel Count <i>(per circuit)</i> | Refresh |
|------------------------------------|---------|
| 8 | 32Hz |
| 16 | 24Hz |
| 32 | 16Hz |
| 64 | 8Hz |

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Rail-DALI Wiring Diagram: (DMX to DALI)



Mode: In DMX to DALI mode values from a DMX controller will be converted to DALI channels with respect to the assigned start addresses. Each of the four DMX channel blocks are converted to the corresponding DALI channel on one of the four output circuits.

Input: DMX512-A

Output: 4 x DALI circuit (64 channels)

DIP Switches: 1, 2, 3 to the 'OFF' position

Addressing: Each DALI circuit is considered a sub-device of a Rail-DALI unit. Therefore each circuit / sub-device has a unique start address. The start address can be set using an RDM programmer, such as Jump-Start.

| DMX Address | DALI Ch (Circuit 1) |
|----------------------|---------------------|
| Start Address A | 1 |
| Start Address A + 1 | 2 |
| ... | ... |
| Start Address A + 62 | 63 |
| Start Address A + 63 | 64 |

| DMX Address | DALI Ch (Circuit 2) |
|----------------------|---------------------|
| Start Address B | 1 |
| Start Address B + 1 | 2 |
| ... | ... |
| Start Address B + 62 | 63 |
| Start Address B + 63 | 64 |

Factory default addressing is set to consecutive channels

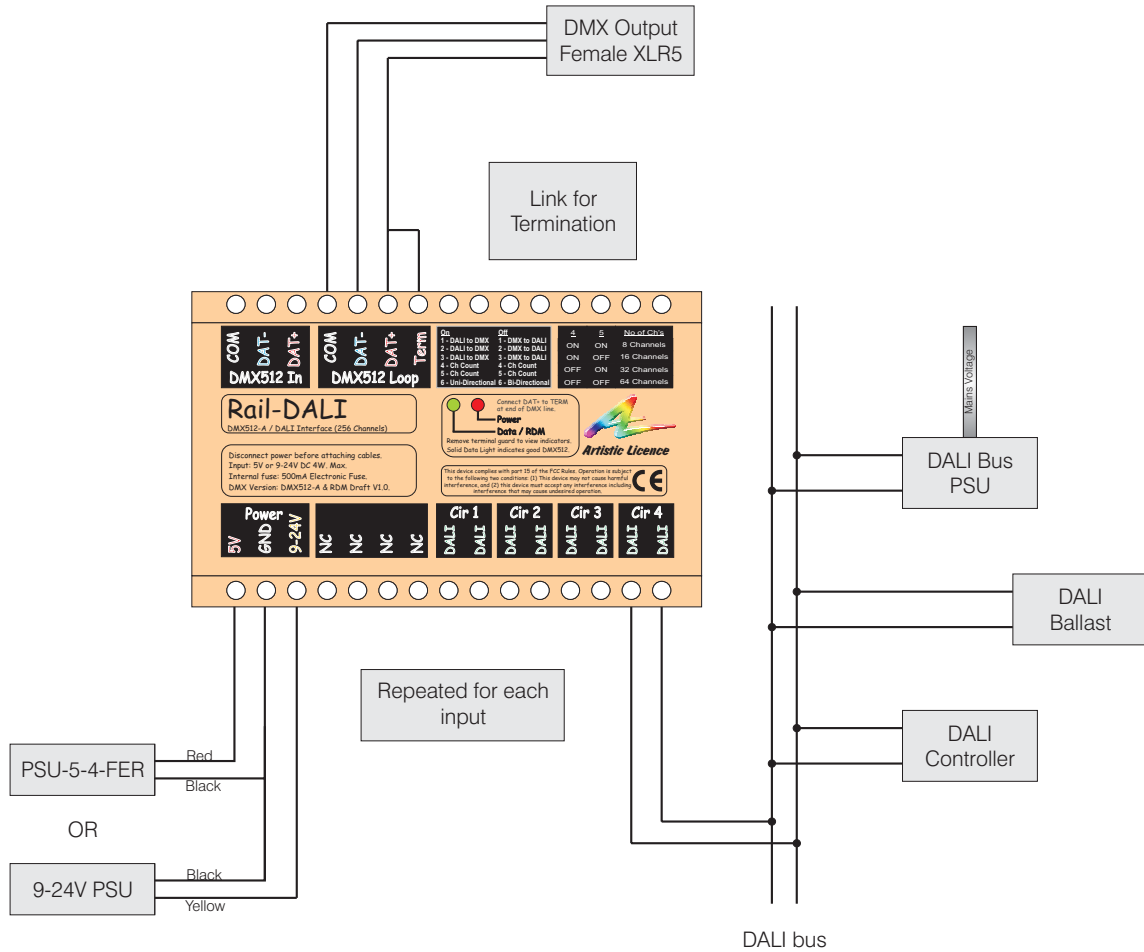
| DMX Address | DALI Channel | DALI Circuit |
|-------------|--------------|--------------|
| 1 | 1 | 1 |
| 2 | 2 | 1 |
| ... | ... | 1 |
| 64 | 64 | 1 |
| 65 | 1 | 2 |
| 66 | 2 | 2 |
| ... | ... | 2 |
| 128 | 64 | 2 |

| DMX Address | DALI Channel | DALI Circuit |
|-------------|--------------|--------------|
| 129 | 1 | 3 |
| 130 | 2 | 3 |
| ... | ... | 3 |
| 192 | 64 | 3 |
| 193 | 1 | 4 |
| 194 | 2 | 4 |
| ... | ... | 4 |
| 256 | 64 | 4 |

Termination Link: Fit only if unit is last in the DMX line

Feedback: Status information from the DALI fixtures are fed back as sensor information from the sub-devices of the Rail-DALI unit. No DALI channel levels are converted back to DMX.

Rail-DALI Wiring Diagram: (DALI to DMX)



Mode: In DALI to DMX mode Rail-DALI is used to convert DALI values from four individual circuits into DMX channels set by the start addresses.

Input: 4 x DALI

Output: DMX (upto 256 channels)

DIP Switches: 1, 2, 3 to the 'ON' position

Addressing: Each DALI circuit has a separate DMX start address that can be user configured. This allows the user to patch the incoming DALI values to any block of DMX channels. The start address can be set using an RDM programmer, such as Jump-Start.

| DALI Ch (Circuit 1) | DMX Address |
|---------------------|----------------------|
| 1 | Start Address A |
| 2 | Start Address A + 1 |
| ... | ... |
| 63 | Start Address A + 62 |
| 64 | Start Address A + 63 |

| DALI Ch (Circuit 2) | DMX Address |
|---------------------|----------------------|
| 1 | Start Address B |
| 2 | Start Address B + 1 |
| ... | ... |
| 63 | Start Address B + 62 |
| 64 | Start Address B + 63 |

Factory default addressing is set to consecutive channels

| DALI Circuit | DALI Channel | DMX Address |
|--------------|--------------|-------------|
| 1 | 1 | 1 |
| 1 | 2 | 2 |
| 1 | ... | .. |
| 1 | 64 | 64 |
| 2 | 1 | 65 |
| 2 | 2 | 66 |
| 2 | ... | .. |
| 2 | 64 | 128 |

| DALI Circuit | DALI Channel | DMX Address |
|--------------|--------------|-------------|
| 3 | 1 | 129 |
| 3 | 2 | 130 |
| 3 | ... | .. |
| 3 | 64 | 192 |
| 4 | 1 | 193 |
| 4 | 2 | 194 |
| 4 | ... | .. |
| 4 | 64 | 256 |

Termination Link: Always fit

Feedback: Currently there is no feedback from RDM to DALI.

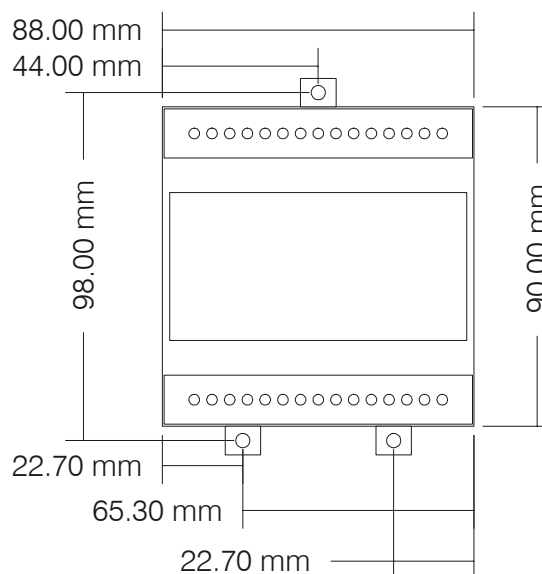
The wiring diagrams should only be used as a guide. For further information please look at the official DALI specification on wiring a DALI circuit.

DIP Switches:

| DIP Switch | | On Mode | Off Mode |
|------------|-----|-----------------|----------------|
| 1 | | DALI to DMX | DMX to DALI |
| 2 | | DALI to DMX | DMX to DALI |
| 3 | | DALI to DMX | DMX to DALI |
| 4 | 5 | Channel Count | |
| OFF | OFF | 64 Channels | |
| OFF | ON | 32 Channels | |
| ON | OFF | 16 Channels | |
| ON | ON | 8 Channels | |
| 6 | | Uni-Directional | Bi-Directional |

DIN Rail Surface Mounting:

To use the surface mount option push the three bottom tabs out until they click into place. We recommend using an M4 Pan head screw.



The DIN Rail Range:

- ❑ Rail-Split RDM – A fully bi-directional six channel DMX512 splitter and distribution amplifier
- ❑ Rail-Pipe – A six channel intelligent power supply / low voltage dimmer
- ❑ Rail-Switch – Provides six mains voltage relays with DMX512 and RDM Draft V1.0 support
- ❑ Rail-Demux – Provides 16 DMX512 to analogue outputs and RDM Draft V1.0 support
- ❑ Rail-Tran – Provides six Darlington transistor outputs, operation to 50V DC at 450mA, product total 750mA
- ❑ Pixi-Power SB1 – A power and data controller for Pixi-Bulb and Pixi-Strip
- ❑ Rail-DALI – A 256 channel bi-directional DMX / DALI interface

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