

# Rail-DALI User Guide

(Version 5.5)

Rail-DALI is a DMX / DALI interface. It will convert either 256 channels from DMX to DALI or 64 channels & 16 groups from DALI to DMX. Using the unique features of intelligent DALI and RDM it allows system information from the fixtures back to the controller (DMX to DALI only). In DMX to DALI mode all parameters including start address are set using RDM. This can be done using any of the following products: Jump-Start & Net-Lynx O/P or Ether-Lynx via an Art-Net network. For more information see App Note 36 & 39 at [www.ArtisticLicence.com](http://www.ArtisticLicence.com)

## Key Features include:

- ❑ Four independent DALI bus circuits
- ❑ Bi-directional data
- ❑ Upto 256 channel conversion (DMX to DALI only)
- ❑ 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
  - Multiple Configuration Options

## Specification:

Input Voltage: 9V - 24V DC  
 Maximum Power: 7W  
 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-9-1.5-FER  
 Output: 9V 1.5A  
 Input: Auto-sensing  
 Max Rail-DALIs: 1  
 Listing: CE / FCC / UL / PSE

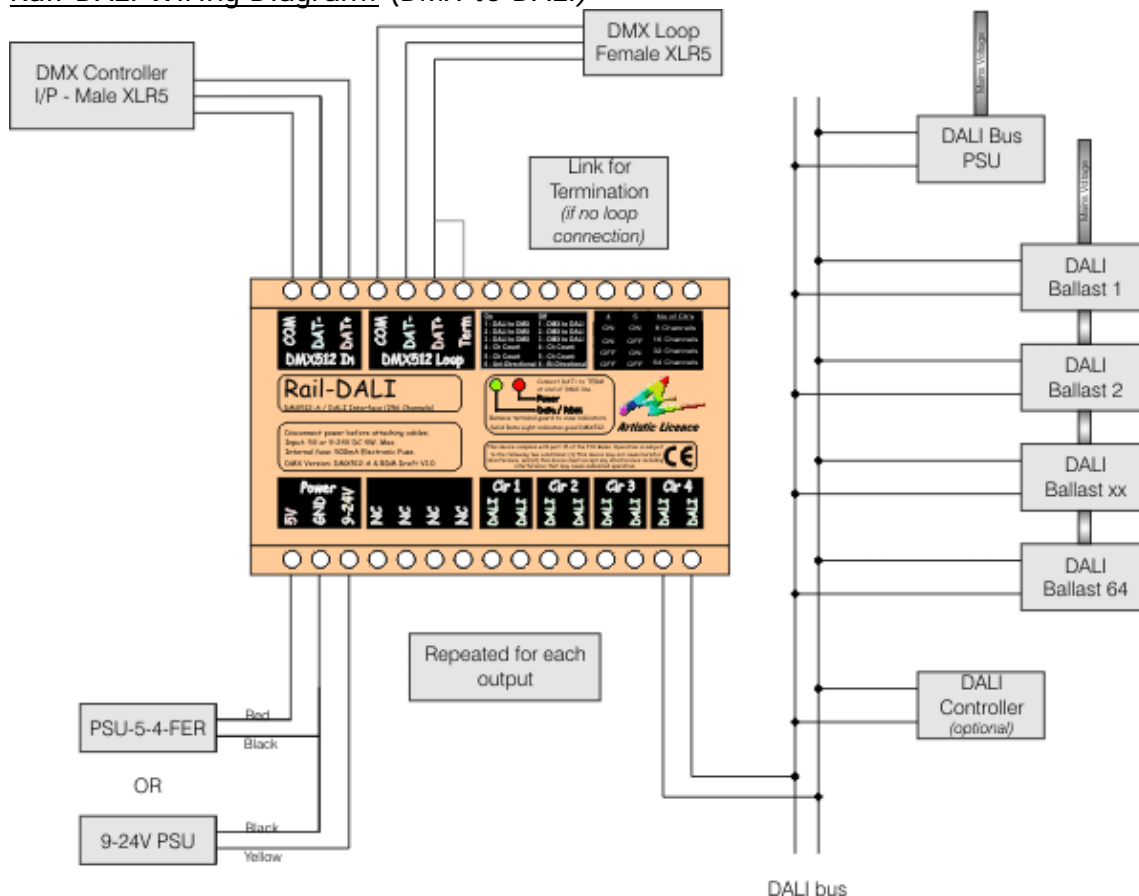
PSU-24-2-DR  
 Output: 24V 2A  
 Input: Auto-sensing  
 Max Rail-DALIs: 2  
 Listing: CE / FCC / UL / PSE



## Refresh Rates on DMX to DALI:

Personality	Mode	Worst Case Refresh Rate
0	4 Channel mode	64mS
1	16 Channel mode	400mS
2	64 Channel mode	1Sec
3	256 Channel mode	4 Sec

## 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 personality and start addresses. Each of the four DMX channel blocks are converted to the corresponding DALI channel or group on one of the four output circuits

**Input:** DMX512-A

**Output:** 4 x DALI circuit (64 channels per circuit)

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

**Personality 0:** (Dip Sw4 = ON, Dip Sw5 = ON)

4 channel mode - each DALI circuit is broadcast controlled by a single DMX channel

**Personality 1:** (Dip Sw4 = ON, Dip Sw5 = OFF)

16 channel mode - each DALI group is controlled by a single DMX channel, broadcast on all circuits

**Personality 2:** (Dip Sw4 = OFF, Dip Sw5 = ON)

64 channel mode - each DALI group is controlled by a single DMX channel, each DALI network is addressed by 16 different channels

DMX Ch	DALI Circuit 1	DMX Ch	DALI Circuit 2	DMX Ch	DALI Circuit 3	DMX Ch	DALI Circuit 4
SA + 0	Group 1	SA + 16	Group 1	SA + 32	Group 1	SA + 48	Group 1
SA + 1	Group 2	SA + 17	Group 2	SA + 33	Group 2	SA + 49	Group 2
...	...	...	...	...	...	...	...
SA + 15	Group 16	SA + 31	Group 16	SA + 47	Group 16	SA + 63	Group 16

**Personality 3:** (Dip Sw4 = OFF, Dip Sw5 = OFF)

256 channel mode - each DALI ballast is a sub device and is addressed by a single DMX channel

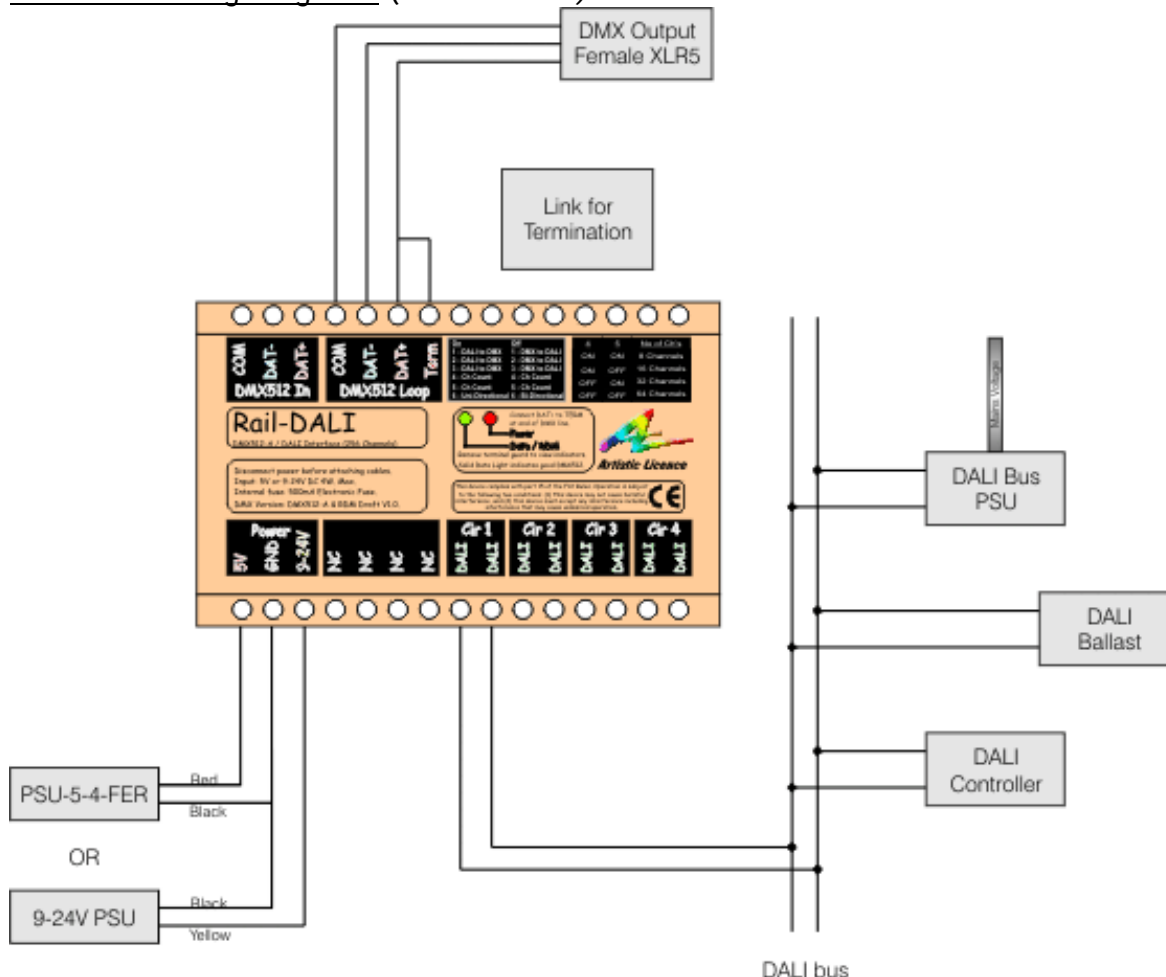
DMX Ch	DALI Circuit 1	DMX Ch	DALI Circuit 2	DMX Ch	DALI Circuit 3	DMX Ch	DALI Circuit 4
SA + 0	Channel 1	SA + 64	Channel 1	SA + 128	Channel 1	SA + 192	Channel 1
SA + 1	Channel 2	SA + 65	Channel 2	SA + 129	Channel 2	SA + 193	Channel 2
...	...	...	...	...	...	...	...
SA + 63	Channel 64	SA + 127	Channel 64	SA + 191	Channel 64	SA + 255	Channel 64

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

**Feedback:** Lamp status information from the DALI fixtures are fed back to the DMX controller using RDM

DMX Channel	Output
Start Address	Broadcast on DALI Circuit 1
Start Address + 1	Broadcast on DALI Circuit 2
Start Address + 2	Broadcast on DALI Circuit 3
Start Address + 3	Broadcast on DALI Circuit 4
DMX Channel	Output (all circuits)
Start Address	Group 1 Broadcast
Start Address + 1	Group 2 Broadcast
...	...
Start Address + 15	Group 16 Broadcast

## Rail-DALI Wiring Diagram: (DALI to DMX)



**Mode:** In 'DALI to DMX mode' Rail-DALI is used to convert DALI values from a DALI controller into DMX channels

**Input:** 1 x DALI

**Output:** DMX (64 channels, 16 groups)

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

**Conversion:** In DALI to DMX mode both channel values and group values are converted into DMX. The table below illustrates the relationship. Default addressing is set to consecutive channels

DALI Channel	DMX Address
1	1
2	2
3	3
...	...
...	...
63	63
64	64

DALI Group	DMX Address
1	65
2	66
3	67
...	...
...	...
15	79
16	80

**Termination Link:** Always fit

**Feedback:** Currently there is no feedback from RDM to DALI. Rail-DALI will respond to 'Query Status' command to show that each DALI channel is being used

*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.*

**Note:** It is recommended that wires from the PSU to the Rail-DALI have a ferrite core, or similar suppression device, fitted. This should be located close to the Rail-DALI.

### CE Compliance

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

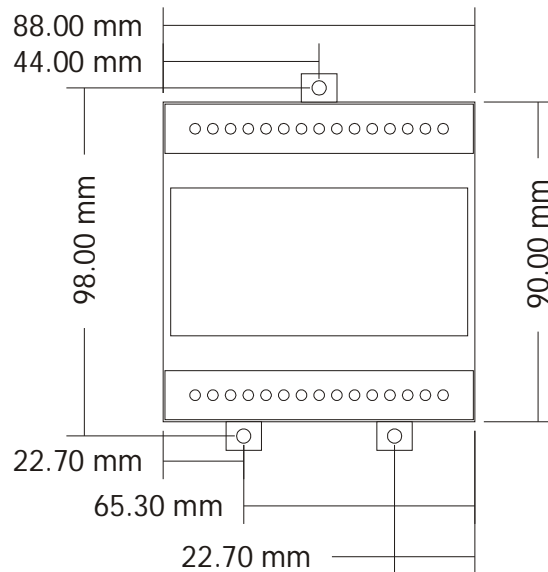


## DIP Switches:

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	Personality	
ON	ON	0: 4 channel mode (DMX to DALI only)	
ON	OFF	1: 16 channel mode (DMX to DALI only)	
OFF	ON	2: 64 channel mode (DMX to DALI only)	
OFF	OFF	3: 256 channel mode (DMX to DALI only)	
6		Not-Connected	

## 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
- ❑ Rail-DALI - A 256 channel bi-directional DMX / DALI interface
- ❑ Rail-Patch - A DIN Rail mounted patch panel for a 5pin XLR to screw terminal connection
- ❑ Rail-PSU-D4 - A four circuit DALI Bus PSU
- ❑ CP12 - An LED dimmer designed to control high power LED devices
- ❑ Net-Pipe - A high power Ethernet controlled LED dimmer

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