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Merged IoT and Power Solutions
LED Drivers   Room quality sensors
ATX-LED

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AL-DMX-DALI v2

Convert DMX to DALI

DMX input

DALI output

Product Description - AL-DMX-DALI

This device receives information address from a DMX512 universe and outputs to a DALI bus signal.

DALI: used for 16 Groups or 64 individual addressed LED drivers

To reduce traffic on the DALI bus, and to allow manual switch override, only changes to the addresses monitored by this device will generate DALI packets. This feature means that the AL-DMX-DALI can be combined with AL-DALI-WS wall switches to allow operation without any console active, then be overridden by a console.

Overview DMX operation

The installer connects this device to his DMX512 universe via a XLR connector. The DIP switch is set to the DMX starting address (Base Address), or 0.   The output is either a DALI broadcast packet or a DALI group packet, or a DALI individual packet depending on the DMX mode and address received.

The DALI side is connected to a DALI bus. A broadcast packet will address all fixtures, Group packets only address those fixtures belonging to that group, individual address just one device.

DALI packets are sent on change of DMX values, or when the DALI bus power is removed and restored. Thus, if no DALI packet is to be sent, then the corresponding DMX address should stay unchanged. A change will trigger a packet.

Broadcast and Group addresses allow multiple fixtures to react completely in sync. Individual addresses will be broadcast with a small time delay between addresses, if 64 addresses were changed, the entire sequence would take about 2 seconds.

Wiring Connections

Power for the AL-DALI-DMX module

Apply power to the Module either using the 2.1mm DC connector (center positive) or the RJ45 connector in passive PoE mode. The device uses 24 to 56 volts and 1 watt max. See pinout below.   The pinout below matches the AL-PWS-8D PoE injector with DALI. This device is not 802.3af compatible. If using PoE – only use a passive injector.

RJ45 connector pinout

Pin	Function
1	DALI +
2	NC *
3	NC
4	+ Voltage
5	+ Voltage
6	DALI - (gnd)
7	Ground
8	Ground

* Default is an internal jumper J2 connects DALI- to pin6 for use with AL-PWS-8D and ATX LED Hub products. Another jumper J1 allows Pin2 to be the DALI- signal for isolated DALI systems.

DALI bus interface

Connect the DALI bus to your DALI bus. You will need a DALI power supply for the bus, for example the AL-PWS-8D. The DALI bus must have a current limited (typically 200 mA 16 volt) supply for normal operation.

DMX bus interface

Connect the 3 pin XLR to your DMX universe. Note – if the DMX bus is longer than 30 ft – you will need to terminate the connection.   Use a XLR splitter and XLR terminator for this. Contact us for internal termination options.

<u>Specifications</u>

Name	Function	Description
DC/Gnd	Power source	2.1 x 5.5 mm DC connector or RJ45 : 20 to 57 volts
	Internal Power consumption	1 watt 50 mA at 20 volts 20 mA at 48 volts
DA	DALI Bus	DALI in and out Multi Master collision detect 24 volt max, 300 mA max Opto Isolated
XLR	DMX Bus	Standard DMX pin out (3 pins) no termination
	Protection	Reverse protection and static protection
	Operating Temperature	0°C ~ 50°C
	Size	75 mm x 55 mm x 27 mm

Dip Switch Settings

## All switches off – individual address mode
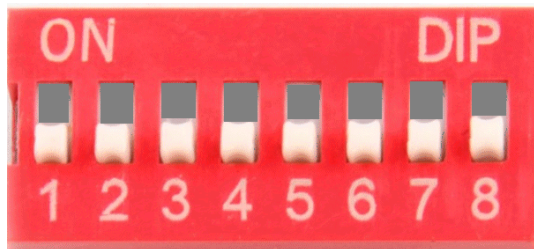
In this case – the DMX addresses 1 thru 64 are tested for changes. If a change occurs, then a DALI packet with the new value will be sent to an individual address which is the same as the DMX address. So a change to DMX address 10 will create a DALI packet to address 10.

DMX address 64 is converted into a Broadcast packet – all lights will be set.

Please set your DMX stage lighting to addresses greater than 64, rapid changes to addresses from 1 to 64 will cause overloading of the DALI bus.

At least one switch on – group mode
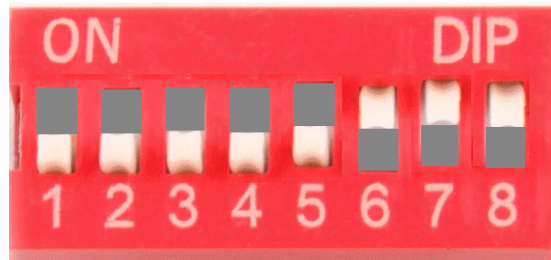
8 DIP switches on the side control the starting addresses for DALI groups in the DMX512 universe.   Only even addresses can be set, from 2 thru 480... DALI drivers area assigned to groups via DALI master like the Euchips DALI-100, the AL-DALI-PI or set manually in the AL-WS-010v. The above example sets a base of 448.
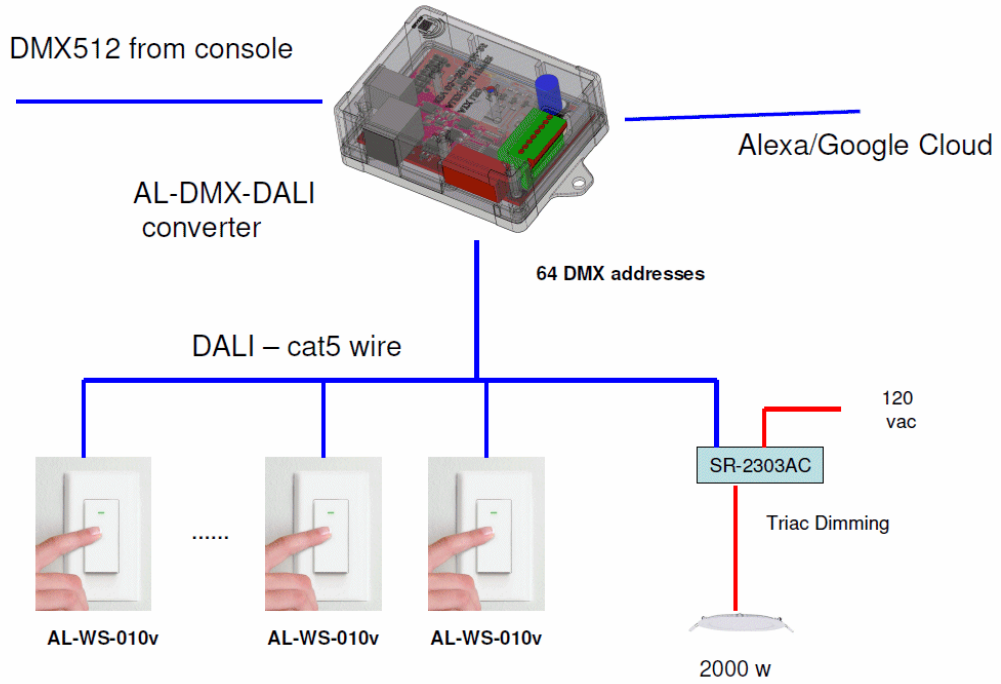
Example: setting DMX512 address 448 to Groups

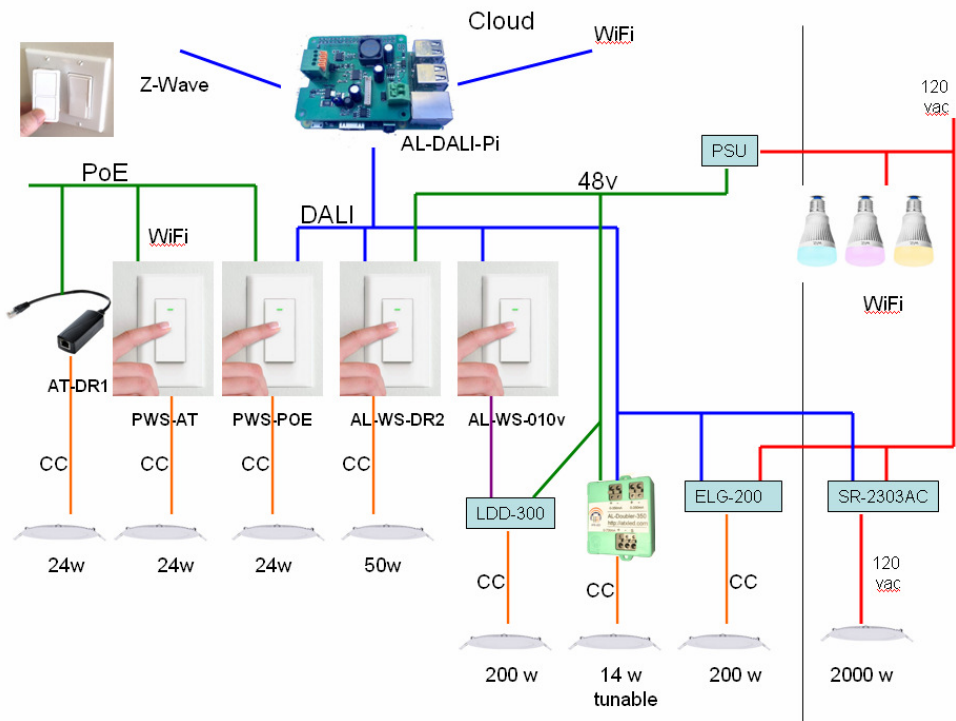| DMX512 address	Example DMX address	DALI Address	
Base	448	Group 0	
Base+1	449	Group 1	
Base+2	450	Group 2	
Base+3	451	Group 3	
….	…	….	
Base+16	474	Broadcast	

Switch 1 is DMX Bit 1, switch 8 is the MSB, (DMX bit 8).. To set the base address to 10 – then set all off except 3 and 1 (5x2 = 10).   The device will now listen to DMX addresses 10 thru 26, sending out groups 0-15.

DMX512 info sent to address 10 will output a Group 0 packet if it changes.   If address 26 is changed – all fixtures will respond – this is broadcast mode. DMX512 info sent to addresses 10-25 will be sent as Group 0-15.

Stage / Audience lighting system

DMX512 from console

Alexa/Google Cloud

AL-DMX-DALI converter

64 DMX addresses

DALI – cat5 wire

120 vac

SR-2303AC

Triac Dimming

AL-WS-010v **AL-WS-010v** **AL-WS-010v**

2000 w

DALI system expansion options

Cloud

WiFi

Z-Wave

AL-DALI-Pi

PoE

48v

120 vac

WiFi

DALI

PSU

WiFi

AT-DR1

PWS-AT PWS-POE AL-WS-DR2 AL-WS-010v

CC   CC   CC   CC

LDD-300

ELG-200

SR-2303AC

24w   24w   24w   50w

CC   CC   CC

120 vac

200 w   14 w tunable   200 w   2000 w

Example Church setup

Please see the AL-WS-010v manual for instructions on setting the Al-WS-010v to individual or group mode.

Case 1: no DALI Master, DIP switch = 0

In this mode – the DMX512 console addresses the DALI lights on DMX address 1 thru 63. Address 64 is broadcast to all DALI fixtures.

Function	AL-WS-010v Location	AL-WS-010v address	SR-2303AC Address	DMX Address
Stage Lights				64-511
Audience Left	Left	1	1	1
Audience Right	Right	3	3	3
Balcony			5	5
All Lights	Entrance	Broadcast		64

Case 2: DALI Master configured system, DIP switch = 16

In this mode – the DMX512 console address 17 thru 32 map to addresses the DALI devices in Groups 1-15. Address 32 is broadcast to all DALI fixtures.   For example, a SR-2303AC is set to any individual address, and the DALI-100 or AL-DALI-Pi Master is used to assign the SR-2303AC to different groups.

Group 1 is left, Group 2 is Right, Group 3 is Balcony, Group 4 is the main floor.

Function	AL-WS-010v Location	AL-WS-010v address	SR-2303AC Address	DMX Address
Stage Lights				
Audience Left	Left	Group 1	1, Group 1, 4	17
Audience Right	Right	Group 2	3, Group 2, 4	18
Balcony			5, Group 3	19
Main Floor				20
All Lights	Entrance	Broadcast		32