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LED Drivers Room quality sensors

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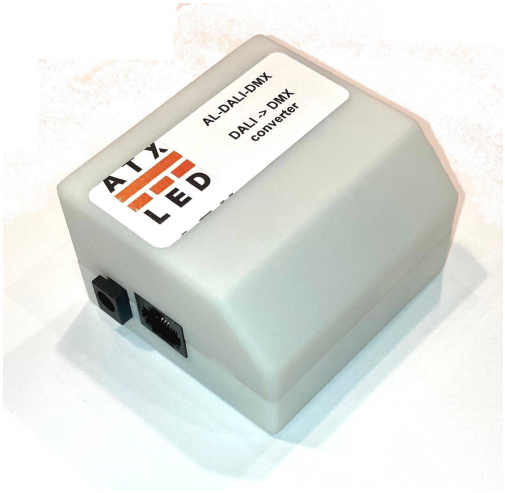
AL-DALI-DMX-Wiz

CCT Lighting Control Cloud Interface for Apps, Alexa, Google Home, IFTTT

DALI and DMX outputs



Product Description - AL-DALI-DMX-WIZ

This device interconnects the Cloud (via App, Alexa, IFTTT, or Google Home etc) to a DALI bus, and or a DMX512 bus. Using the Wiz Connected Home App – you can enable the cloud to control lighting. The Cloud app is linked to Amazon Alexa, or Google Home or any other cloud service. The AL-DALI-Wiz connects to your home WiFi network on the 2.4 ghz band.

Cloud to DALI mode: The AL-DALI-WIZ device will send DALI commands to individual addresses, Groups, Scenes or Broadcast. Groups and Scenes allow multiple DALI drivers to be controlled in sync from one Cloud command. CCT is supported using DALI DT8 commands. Optionally, the device can supply current limited DALI bus power.

Cloud to DMX mode: Light levels in a DMX512 universe can be set by this device.

DALI to DMX mode option: See the AL-DALI-DMX version to convert addresses in a DALI system to DMX for use with DMX devices. We monitor the state of the DALI bus and reflect that in the DMX universe.

DMX to DALI mode option: See the AL-DMX-DALI version to operate as a set of DMX fixtures – the DMX defined light levels are converted to DALI for use with DALI drivers.

Overview

The user connects our device to his WiFi Network. Please see the instructions for connecting to the WiFi at https://www.wiz.world

The Wiz application gives the user control of the state of DALI and/or DMX. The device can be connected to a DALI or DMX bus. In DALI applications, DALI type 6 (white) and DALI type 8 (Color Temperature tunable) are supported and automatically detected.

After the wifi connection (using Wiz) is established, the next step is to use the Wiz App to test the function. After that, use Alexa or Google to discover the device and connect it with voice control.

Multimaster Operation

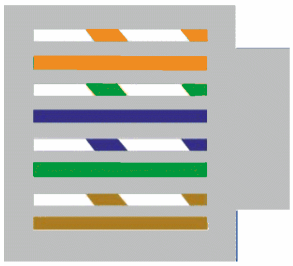
Software version After the wifi connection (using Wiz) is established, the next step is to use the Wiz App to test the function. After that, use Alexa or Google to discover the device and connect it with voice control.

Wiring Connections

Power for the AL-DALI-WIZ 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

For DALI bus applications

If DALI is not being used – you can ignore this connection. If DALI power is found then DALI packets will be sent. If you use DALI – then DALI addresses and type of operation is set by the dip switches. The DALI bus must have a current limited 30 to 260 mA 16 volt supply for normal operation. Set the DIP switches to Broadcast mode to start. Apply a DALI power supply. Once broadcast is operating, you can move on to Groups, Scenes and individual addresses.

Single address DMX bus applications

Connect the DMX RJ11 connector to your DMX universe using the XLR connector. The DMX mode and address is defined by DIP switches (see below). We recommend that no DALI bus is attached if Wiz to DMX operation is intended.

Complex multi master DMX bus applications

Contact us for controlling ranges of DMX512 addresses – for example for Lumastream systems.

Alexa WiFi Connection

Install the “Wiz Connected Light” app on your smartphone. Follow the instructions to connect the AL-DALI-WIZ device to your Alexa or Google account – see short help below, see https://wiz.world for more info.

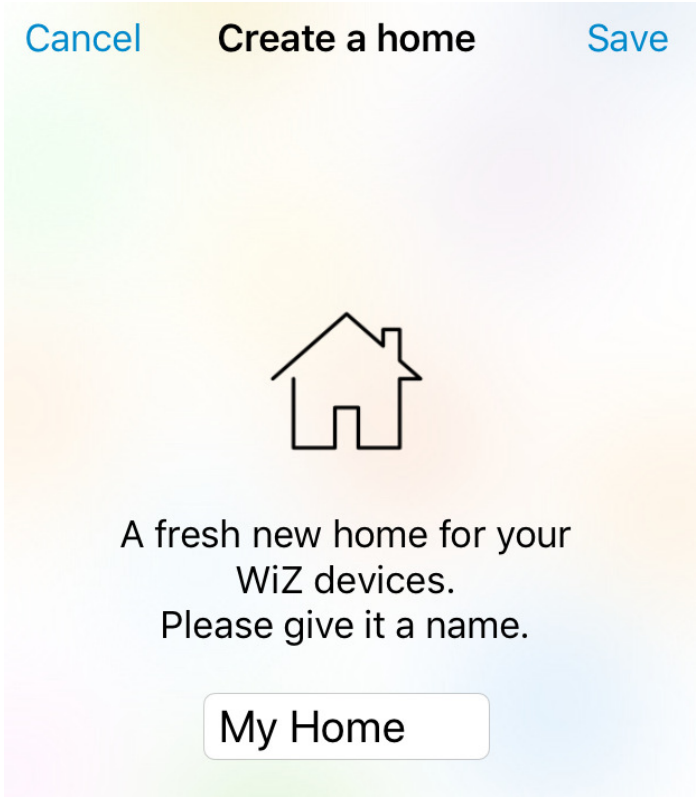
Specifications

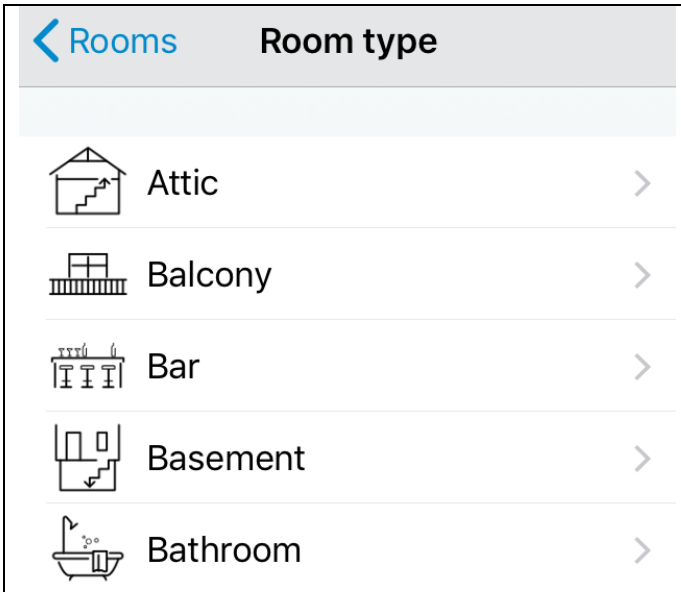
Name	Function	Description
DC/Gnd	Power source	2.1 x 5.5 mm DC connector or RJ45 : 20 to 57 volts
	Internal Power consumption	1 watt 50 mA at 20 volts 20 mA at 48 volts
DA	DALI Bus	DALI in and out Multi Master collision detect 24 volt max, 300 mA max Opto Isolated
XLR	DMX	5 DMX addresses
WiFi	Home Automation Support	Alexa Google Home IFTTT
		802.11b/g/n supported
	App Support	iPhone, Android
	Control System	Control 4 via Adeo SGDD-C4 Savant RTI via RS232 (Foxtron DALI232)
	Protection	Reverse protection and static protection
	Operating Temperature	0°C ~ 50°C
	Size	75 mm x 55 mm x 27 mm

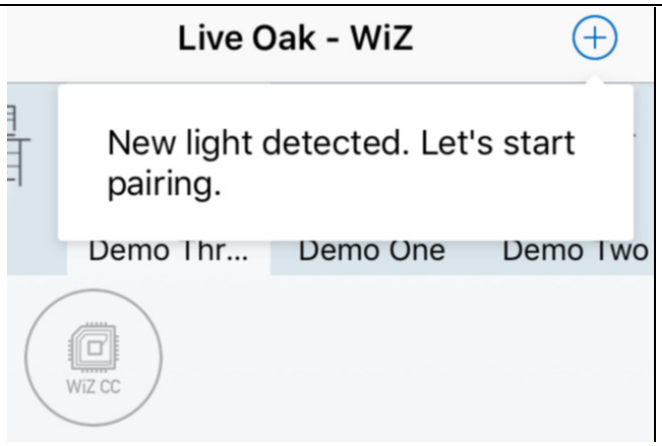
Wiz Connected Light App Setup

Install the Wiz app on your phone. Create a home, create a room, and then click to add a light. Enter pairing mode using the method above. Note – if the device has been paired before – you will have to enter pairing mode twice for this to work. Once in pairing mode – it will take up to 2 minutes to complete. Note – you will need at least one operating SSID (wifi network) on 2.4ghz for this device to work. Also note – in step 4 – wifi network name – click on the "eye" icon to see your SSID Password and insure that it is correct.

Search for Wiz Connected in the App store – install it

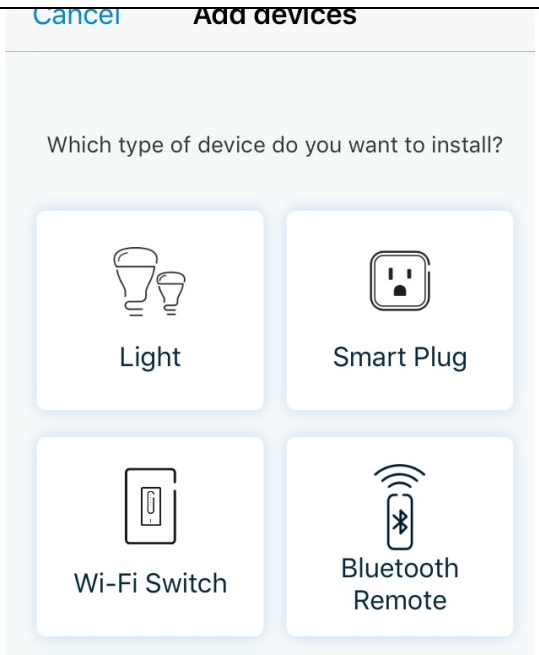




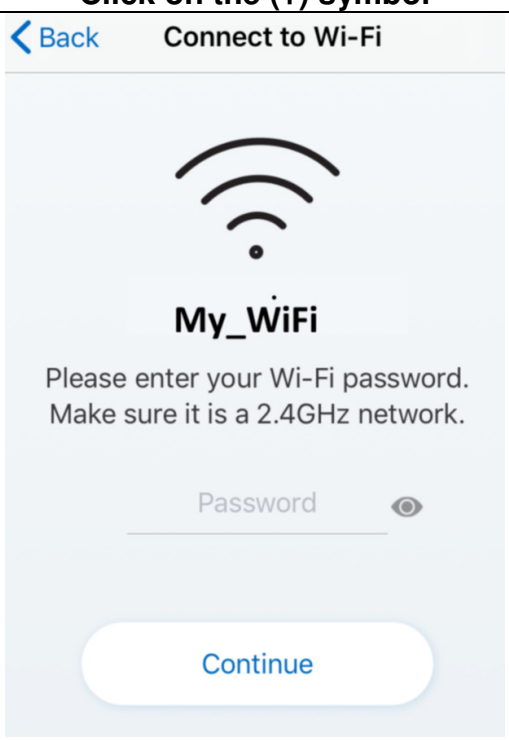


Use the + button connect
(this this does not appear –
try a 2.4 ghz network)

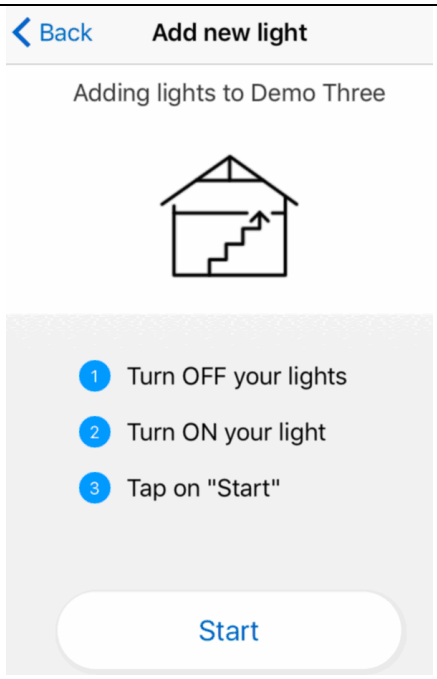
Click on the (+) symbol



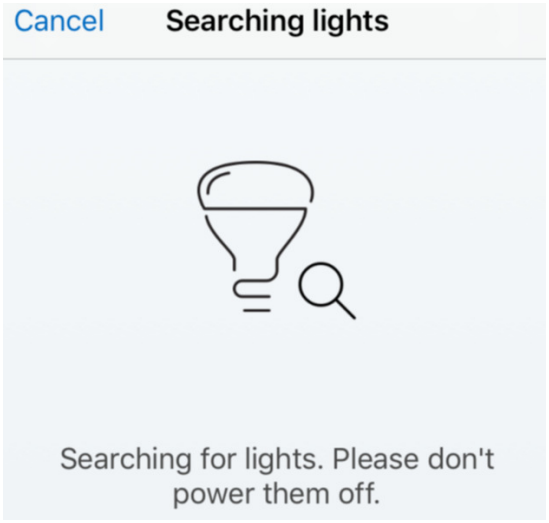
Click on the “WiFi-Switch” tab



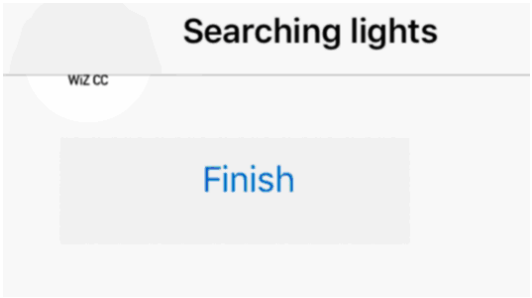
Enter your WiFI Password



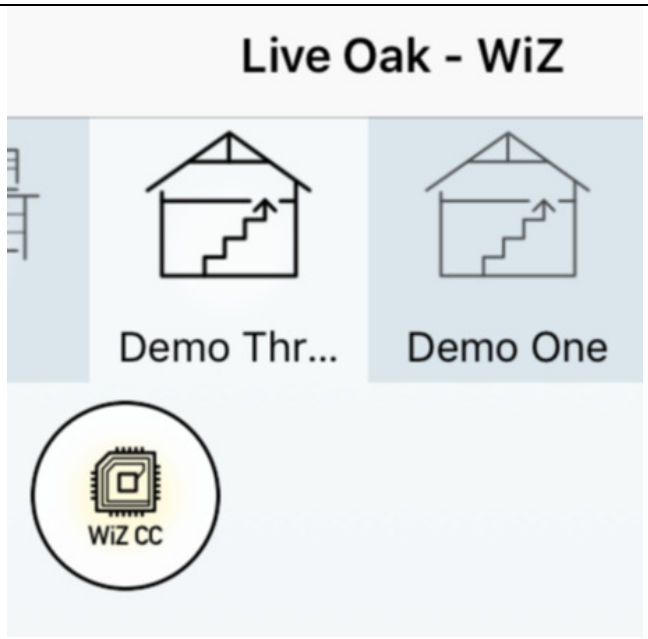
Power off/on then click start



Wait for the search to finish



New device found



You can now control the light. Next step is in the Amazon Alexa App to add this light to voice control

DALI operation Modes

The AL-DALI-WIZ can operate stand alone – no other controller or master is required. For DALI operation - connect your 16 volt, 260 mA current limited, DALI bus to the DA+ and DA- pins (polarity is not significant). Our implementation allows multiple masters – we use collision detection to avoid conflicts on the bus. We offer a low cost DALI power supply.

For first time DALI users – we recommend simple Broadcast mode. Set all switches to ON, and connect one or more DALI LED drivers. Alexa can now turn all of these on/off and dimming is also supported. The Cool White and Warm White are mixed into one color. No configuration of the LED drivers is required to use Broadcast mode.

A more interesting setup has each DALI LED driver assigned a unique address, and controlled by either multiple AL-DALI-Wiz products, by the AL-DALI-Wiz8, or by the AL-DALI-Pi controller.

To use Groups, Scenes and Single addresses, your LED drivers will need a DALI configuration tool – one example is our DALI-100 device for this function. Use it to assign a unique address to each LED driver.

If no DALI voltage is detected – DALI mode is not enabled. In this case, only DMX outputs will function.

There are 3 versions of the AL-DALI-WIZ device -

a) Simple transmitter – DALI commands will be transmitted. In this mode – the cloud interface generates internal values for each color. These are then output as DALI dim and on/off levels. By default – Total White (see above) is the value used for single color drivers. Examples of DALI control from Voice are shown here http://atxled.com/Video/

   Individual, Group, Scene and Broadcast modes are supported and selected by the DIP switches.

b) DALI-> DMX output. All the addresses of a DALI bus are represented as address from 1-64 on the DMX bus. See AL-DALI-DMX.

c) DMX->DALI output. Please see the AL-DMX-DALI data sheet for this operation. The hardware is the same – but the firmware is different. Field conversion is not supported.

DALI Minimum and Maximum dimming levels

In order to compensate for the dimming range of LED drivers – the AL-DALI-Wiz device will query the DALI driver at the address or group selected – and read back the Min and Max levels. Then, the DALI dim values sent by the AL-DALI-Wiz to the Driver will be scaled between minimum and maximum levels. We recommend that fade be enabled in the LED driver to smooth out the transitions.

Tunable White (CCT) Operation

The Wiz application and Alexa / Google Home support changing the color temperature of the bulb.

At power up – or if the address is changed, the AL-DALI-Wiz device sends a query to the LED driver to request if it is mode 8 compatible. If the response is mode 8 – then the AL-DALI-Wiz enters CCT mode.

In non-CCT mode – the Warm White and Cool White information is sent on sequential individual addresses or group addresses – see table below.

In CCT mode – the Warm and Cool selection is sent by the DALI commands 231 (Color Temp) and 226 (save color temp). The output range is 168 to 368 – which equates to 2700K to 5000K. After the color value is sent – the level is sent. The color temperature is only sent if it changes. Brightness must be above 12% for color tuning to work, the color set will be rendered down to 0.

Only Individual Address and Group modes support CCT.

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'Color' Addressing in Monochome Applications

In the Wiz app, each Wiz device has 5 channels. These are Warm White, Cool White, Red, Green, and Blue.

Warm White and Cool White values are added together to make the value sent on monochrome DALI and DMX channels (range of 0 to 254). This resulting value is referred to a "**total white**".

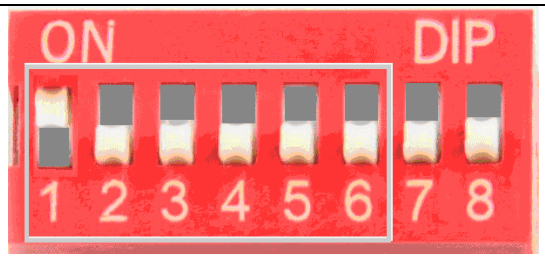
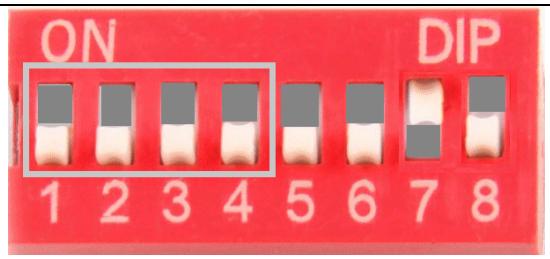
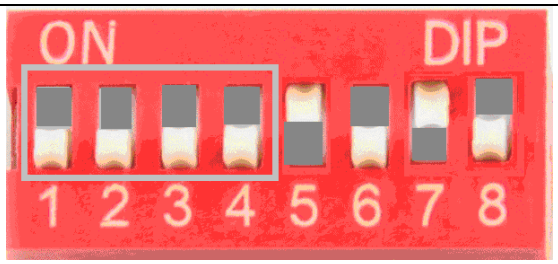
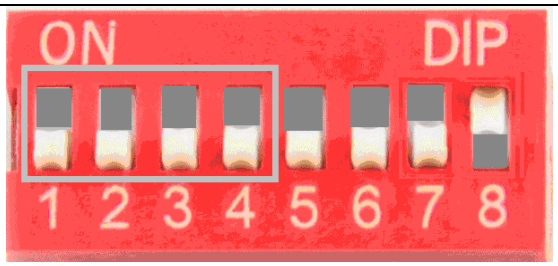
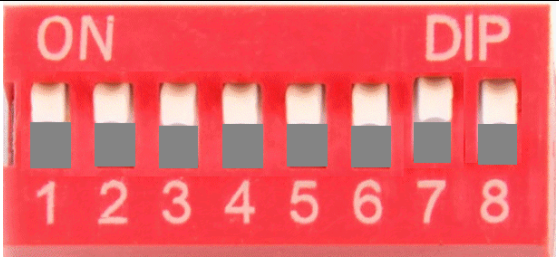
Reset of the device

Sending a DALI reset (command 32) to address 63 will reset the device.

Cloud to DALI Addressing

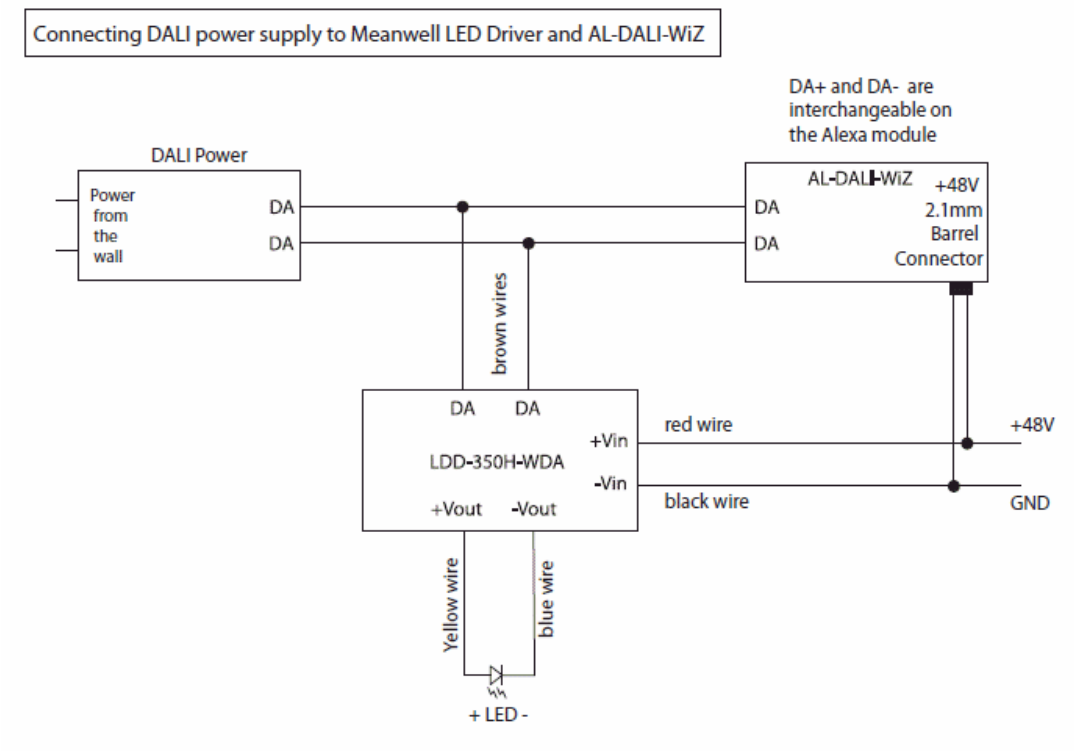
8 DIP switches on the side control the addressing method for the DALI and DMX outputs. This sets the mode – see detailed setup info below.

Switch Settings for DALI Address Modes

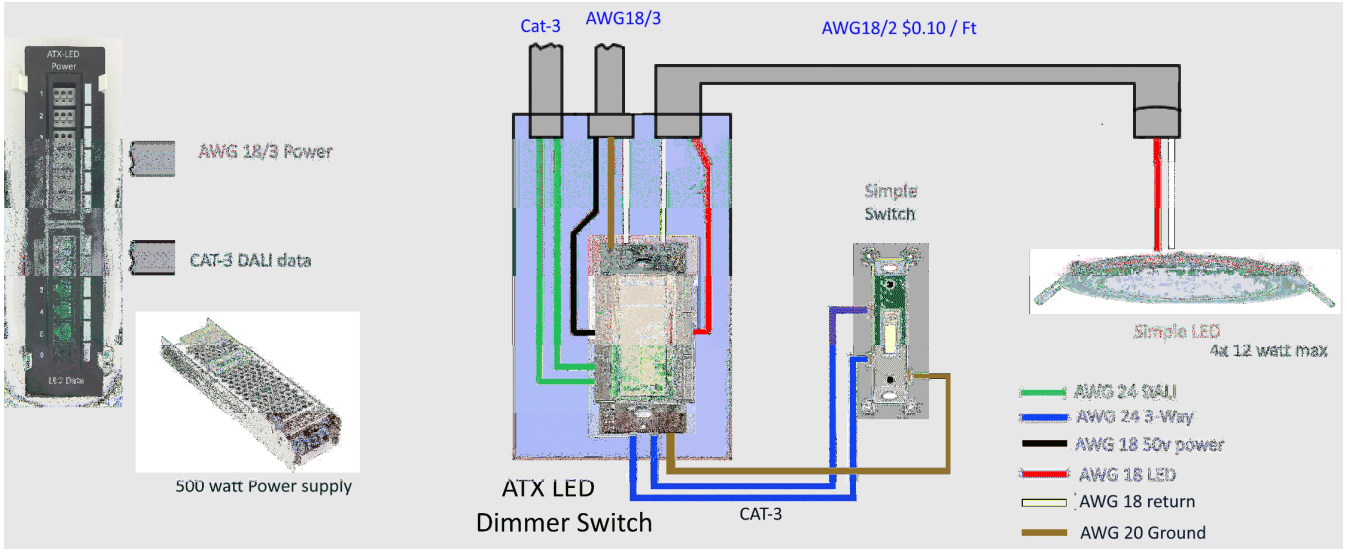
	Mode	Address
	Individual Address 1 thru 63	Set the DALI fixture address in 1-6, LSB is switch 1, therefore DALI address 6 has switch 2 and 3 ON. If the LED driver at this address supports DALI type 8, then CCT will be sent along with dim. Note: address 0 is not possible
	Single Group Address	Set the DALI group address in 1-4, LSB is switch 1, therefore DALI group 3 has switch 1 and 2 ON. If the first LED driver in this group supports DALI type 8, then CCT will be sent along with dim.
	CCT Dual Group Address	This is for non-type 8 CCT drivers The base Group will get the Warm White DIM level. Group address +1 will receive the Cool White level.
	Scene Address One Scene	Set the DALI scene address in 1-4, LSB is switch 1, therefore DALI scene 3 has switch 1 and 2 ON.
	Broadcast Total White	The Total White level will be broadcast to all DALI fixtures, including those with no short addresses assigned. Other colors are ignored.

Cloud to DALI Example

In this example – we use the device to connect from the Cloud to any DALI device.



Cloud to AL-WS-DR2 Example



DALI bus products from ATX LED Consultants

		
Structured Wiring DALI power supply with easy wiring	Wall Switch + LED Driver with DALI AL-DALI-DR2	Wall Switch + 0-10 volt DALI AL-DALI-010v

Other standard DALI products

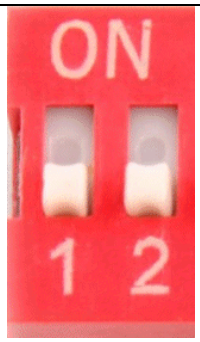
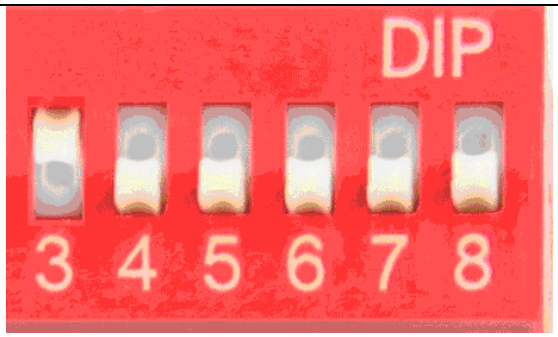
		
120 VAC DALI LED driver	DALI Wall Switch	DC-DC Dali driver expansion option

Cloud to DMX Operation

Up to 2 AL-DALI-WIZ or AL-DALI-WS can be put on the same DMX bus. Multimaster operation adds proprietary header and checksum bits to the standard DMX packet – so addresses 510 and 511 are not available for lights. The Address of the DMX device that is to be controlled by the cloud is set by the DIP switches as shown below:

See our example at http://atxled.com/Video .

DALI to DMX conversion requires the DIP switches to be set to all off therefore Cloud to DMX is not then allowed.

	
DMX mode selection 2 bits = 4 modes	DMX base address – 8 thru 496 multiples of 8 (minimum is address 8)

Switch			DMX Switch Base address + color data																
1	**2**	**Mode**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Off	**Off**	**RGB 2,3,4**	**On/ Off**	**R**	**G**	**B**					**On/ Off**	**R**	**G**	**B**	**W**	**C**			
Off	**On**	**RGB 5,6,7**	**On/ Off**				**R**	**G**	**B**										**PT**
On	**Off**	**CCT**	**W**	**C**	**W**	**C**	**W**	**C**	**W**	**C**	**W**	**C**	**W**	**C**	**W**	**C**	**W**	**C**	**PT**
On	**On**	**White**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**PT**

R = Red, G = Green, B = Blue, W = Warm White, C = Cool White, T = Warm+Cool White

PT = Total White value in the range of 0=Off, 9-134 is minimum dim to fill brightness

Address Selection (6 bits) multiples of 8

Set the first address of your fixture into the switch. For example, if only switch 3 is on, then address 8 is selected. If only 3 and 5 are on, then address 40 is selected. If only switch 8 is on, then address 256 is selected. Therefore 125 fixtures are possible. Address 0-7 are not allowed. Switches 3-8 must not be set to all off.

A DMX fixture has a base address (set in the fixture) plus up to 7 channels referenced to the base address. If your fixture does not respond to one of the 4 modes – contact us for customization.

Other DMX information:

The DMX packet includes other information; bytes 510 and 511 contain a checksum of the entire packet. Interdevice communication occurs with a special non DMX packet beginning with 0xDD on the bus.