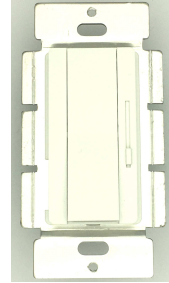




AL-DMX-Switch wall dimmer with DMX output



Product Description - AL-DMX-Switch

This switch operates just like any standard residential light switch – however it uses DMX512 for communication with other devices. This DMX source in a standard residential style outline fits into any home, looks like any switch yet requires no licensed electrician for installation – the dimmer itself uses under 50 mw yet controls thousands of watts of lighting. Stand alone it operates as a single Universe for one DMX address. It has DMX in and DMX out for daisy chaining. One address is set by a dip switch in the range of 8,16,24 etc up to 504 – total 64 devices. The On/Off switch is like any normal switch. The slider can be used in white DIM mode or either as RGB color selection.

When used in an ATX-LED complete system, it can operate in N-Way mode and multiple AL-DMX-Switches can form a complete DMX Universe with up to 512 addresses. An AL-DR1 or similar consolidator is required to build a universe from individual switches. Multiple strings of switches are combined in a central controller.

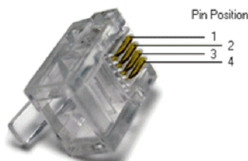
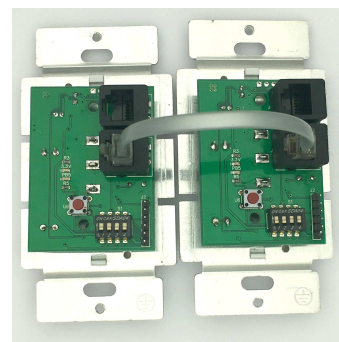
To save space – the connector used is a RJ-11 phone type connector with power and data on the same connector. Supply the switch with 12v to 56v and connect the data pins to your DMX device with a RJ11 to XLR jumper cable as shown below. Use simple phone wire up to 1000 ft over standard CAT-3 2 pair telephone wire.

In an ATX-LED system the AL-DMX-Switch can be daisy chained with up to 8 on one telephone type wire connection. Each one has 16 addresses for controlling 16 LEDs on one or many AL-Drivers. N-Way switching controls lights from opposite sides of a room, or long hallway, or across stairways on multiple floors with one switch per floor.

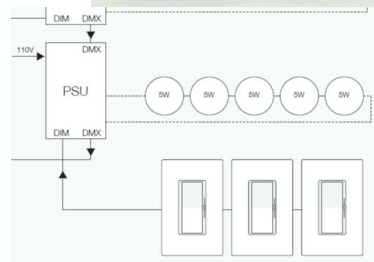
Fully scalable to a 512 light DMX universe, this building block in a 100% low voltage led lighting solution allows low cost installations of light in new and remodel construction.

Specifications

Power and data source and load	RJ 11 female connectors (2)
Power Protocol	Passive
Input voltage range	12v to 57 volts
Power pins in	1 and 4 from PL type LED driver
Data pins (DMX512 over Rj11)	2 and 3 output with collision detection
Max Power consumption	50 milliwatts
Addressing	512 unit addresses via dip switch
Protection	Reverse protection and static protection
Operating Temperature	0°C ~ 50°C
Size	115 x 46 x 50 mm



- Pin 4 Ground and XLR pin 1
- Pin 3 DMX XLR pin 3
- Pin 2 DMZ XLR pin 2
- Pin 1 +12v to + 48v



DMX wall switch configuration

The AL-DMX wall switch is designed for three operational modes:

- DMX512 simple mode – create a single address DMX512 universe packet
- ATX LED Residential mode – allow multiple DMX512 sources to share one DMX512 address and XOR the status to allow N-Way control
- DMX512 consolidated mode – combine up to 64 switches in ATX-LED mode and a DMX console into one complete DMX512 universe. See the AL-DRX-1-30 driver / consolidator

Factory default: ATX LED Residential mode

DMX Packet: Special DMX packet header from the switch

DMX address	1	2	3	4	5	6	7	DMX	DMX+1
Content	100	DMX bit 8	DMX 0-7	Random H	Random L			0 if off else DIM	DIM Level

Stand Alone operation:

- In default mode in a small system – simply set the 4 address switches to the address of the ATX-LED LED driver, nothing else needs to be done.
- 4 bits of DIP switch addresses, addresses possible are 8, 16, 24, 32, etc up to 120. This is the DMX Base Address (N)
- Higher addresses are possible with the config options shown on page 4
- DMX512 repeat interval is 1 minute - switch repeats each 60 seconds by default – for higher speeds see page 4
- For 3 -Way operation a 16 bit random number is coded into fields 4 and 5
- Slider is brightness. Slider works in On or Off state.
- DMX512 address is set to brightness if Switch is ON (simple mode) or 0 if off
- DMX512 address +1 is set to the brightness only – for 3-Way resolution.
- Daisy chain up to 8 switches in series using the RJ11 connector – connect one end to a AL-DR driver, if the distance between switches is over 2 feet – terminate the last switch furthest from the LED driver with a 120 ohm resistor.

Consolidated operation:

When combined with a AL-DR1 consolidator - This mode supports:

- N-Way light control – multiple switches on the same DMX address will be XOR'd to control the light on/off and dimming. Last switch moved sets the dim level and On/Off
- Loop prevention. Since we consolidate up to 64 switches in one DMX universe, we create a loop to communicate between up to 8 controllers.
- Any of our AL-DMX-DR devices can consolidate up to 64 switches, resolve 3-way, and output a complete DMX universe.
- Output packet is standard DMX512 – do not assign any fixture to address 1 thru 8

DMX wall switch configuration

B) DMX simple mode – control a single RGBW, RGB or White fixture

The factory default setting can be changed from Residential mode to DMX simple mode.

Set the jumper on pins 2-3 of the header on the PCB to enable programming mode, set the address DIP switch, the master rocker and slider per the list below. Press the reset button to store the values in local flash memory. Remove the jumper

The Rocker switch and the 4 dip switches control the feature code – see the table below.

The reset button, if the jumper is installed, will store the feature code into flash memory.

A function code of 0 (with rocker on) resets all values to factory default (Residential mode)

A DMX address has 9 bits. The lower 4 are from the DIP switch (**LSB4**). The upper 5 (**MSB5**) are from the configuration setting on page 4.

To program the upper 5 bits, set the Rocker off, then the dip switches will be copied to DMX address bits 4-7 after pressing the reset button. **MSB5** is set to $16 * \text{the DIP switch} = 0-256$. For addresses 257-512, see command 15.

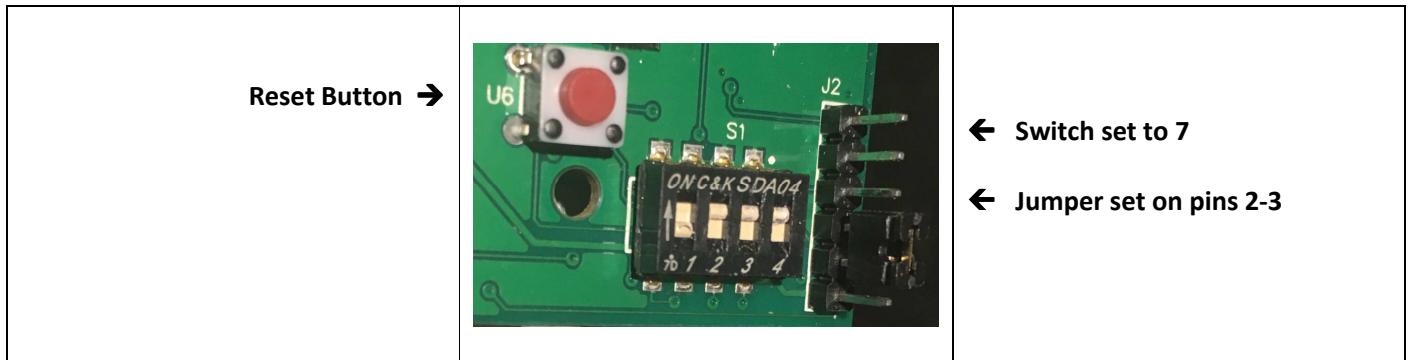
After leaving setup mode, the dip switch is read as 0-15. The complete DMX address (Channel 1) is therefore: **MSB5 + LSB4 * (multiplier)**
DMX512 address 0 is promoted to **address = 1**.

For example, if **MSB5** is 5, and the Dip Switch (**LSB4**) is 7, the multiplier is 4 then the complete address is

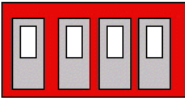
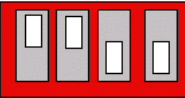
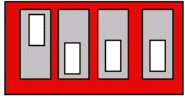
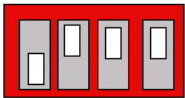
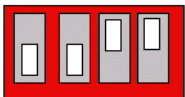
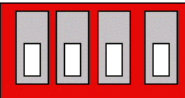
$$5 * 16 + 7 * 4 = 108$$

An address of 0 is replaced with address 1

Reset Button, Dip Switch and Configuration Jumper



Feature Codes – configuration settings

Rocker	DIP Switch	DIP Switch value	Function	Default Refresh Rate	Default Address Multiplier
On		15	Set DMX address bit 8 to 1 – for addresses 257 to 512 (add 256 to MSB5 as defined in the bottom command) MSB5 = 257-512	NC	NC
on		14		NC	NC
On		13	Consolidated Color Mode for DR1 consolidator – address 489-491 is slider sets RGB for all dimmers. All are at 255 if color switch is off. Residential Mode.	60s	NC
On		12		NC	NC
On		11	Color - RGB on channel 567 . Channel 1 = 255 for ON, 0 for OFF, Red is Channel 5, Green is CH6, Blue is CH7. Channel 1 is the DMX address (from 1 to 508), slider selects the Color.	5 Hz	8
on		10		NC	NC
on		9		NC	NC
on		8	Address multiplier is 4	NC	4
on		7	Set DMX Refresh rate = 60 seconds.	60s	NC
on		6		NC	NC
on		5	Set DMX Refresh rate. Slider allows 40 hz (top) or slower refresh rates – LED flashes to show the rate. DMX packets are sent during this setup. When done, turn the rocker off and the speed will be stored.	set	NC
on		4	White spotlight Channel 1 = 255 for ON, 0 for OFF, White is dimmable on CH5 from 0 – 255.	5 Hz	8
on		3	RGBW mode – Channel 1 is brightness from 9-134	5 Hz	8
on		2	Color - RGB on channel 234. Channel 1 = 255 for ON, 0 for OFF, Red is Channel 2, Green is Channel 3, Blue is Channel 4. Channel 1 is the DMX address (from 1 to 508), slider selects the Color.	5 Hz	4
on		1	Simple single channel mode. The brightness goes from 0-255 on channel 1 as the DMX address (from 1 to 508),	5 hz	1
on		0	reset to Factory Default – Residential Mode – see page 2.	60s	8
OFF	Any	0-15	Copy address bits to DMX address 4-7 (MSB5 0-256) (on is a 1, off is a 0). Default = 0 example: 8 means MSB5 = 128 9 means MSB5 = 144 for MSB5 from 256-512 please execute command 15 after setting this function.	NC	NC

Remove jumper after configuration is complete.