BETTER WAY
LIGHTING

24 CHANNEL X 3 AMP DIP SWITCH DECODER

Product number: BWL-24x3-DIP-16

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The BWL-24x3-DIP-16 is a 4-channel DMX decoder designed to be robust and reliable on any film set. Using its high PWM output frequency of 5/10/20/30 Khz it avoids flicker. The frequency and integrated DMX addresses are set by the side-mounted DIP switch. Four output channels makes it compatible with our hybrid and RGB LED lighting solutions with up to 4 amps per channel. Two RJ45 jacks are built in for DMX input and output.

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Features

- Equipped with DMX passthrough on standard XLR-5 and RJ45.
- Screw terminals with DMX signal booster.
- Can control single color, bi-color, RGB, and RGBW LED lights.
- Output 24 channels, MAX 3A per channel. Total current is 72A.
- Direct manual control using the LCD screen and buttons.
- DMX control in 8 bit or 16 bit mode.
- The 24-channel decoder has 8 sets of 3 independently controllable channels of constant-voltage PWM dimming, each set with one common anode power terminal (shared positive). Use of a power terminal is not constrained to the adjacent 3 channels; any combination of LED+ power outputs and channel outputs is valid, as long as no single terminal is made to carry over 15A of current.
- Converts standard DMX signal to hi-freq PWM for 12v or 24v LED lights.

Product Code	BWL-24x3-DIP-16
Dimensions	1.29" x 11.41" x 4.8" | 33 mm x 290 mm x 122 mm
Channels	24
Input Voltage	12-24 Volts DC
Max Input Current	20 Amps per screw terminal
PWM Frequency	5 kHz / 10 kHz / 20 kHz / 30 kHz
Dimming Precision	8 bit and 16 bit configurable
DMX Ports	2x RJ45 and 2x XLR and Screw Terminal
Max Current Load	3 Amps per channel (72 Amps maximum)
Max Output Power	864W/1728W (12V/24V)
Weight	700 grams

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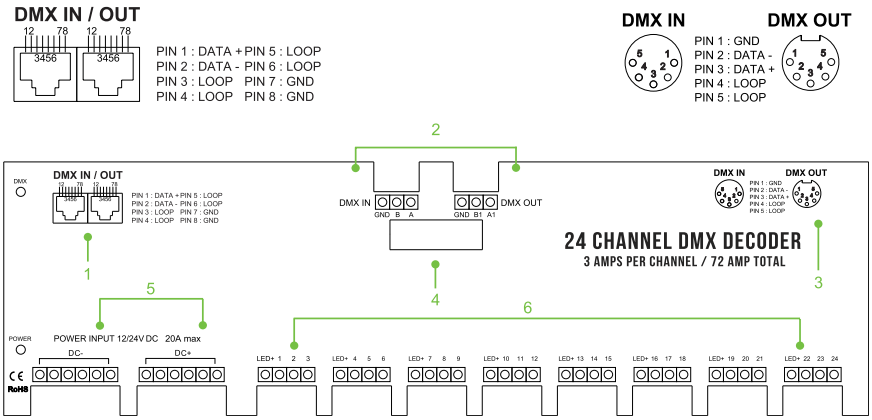
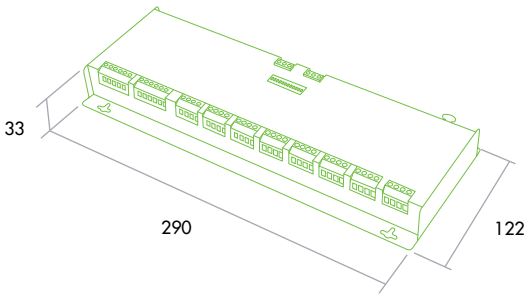
Component Diagrams



1. RJ45 (DMX passthrough)
2. Screw Terminal (DMX repeater)
3. 5 pin XLR (DMX passthrough)
4. Address Dip Switch
5. Power Input Terminal
6. LED Output Terminal



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Product Operation:

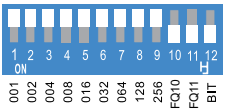
How to set DMX address via DIP switch

DMX address value = the total value of switches 1-9 in the on position.
Otherwise the address remains at zero

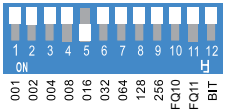
Dip-Switch No.12 for control precision:
ON: 16bit OFF : 8bit
No.11 and No.12 : turn off power for changes to take effect

No 10	No 11	PWM FRQ
OFF	OFF	5 Khz
ON	OFF	10 Khz
OFF	ON	20 Khz
ON	ON	30 Khz

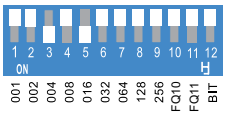
Self-testing Mode
Set DMX Address to 0
All channels will go to full for 3 seconds, then channels 1-4 will flash in sequence



Example Address: 16

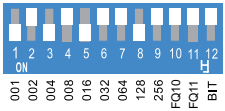


Example Address: 20



004+016=20

Example Address: 149



001+004+016+128=149

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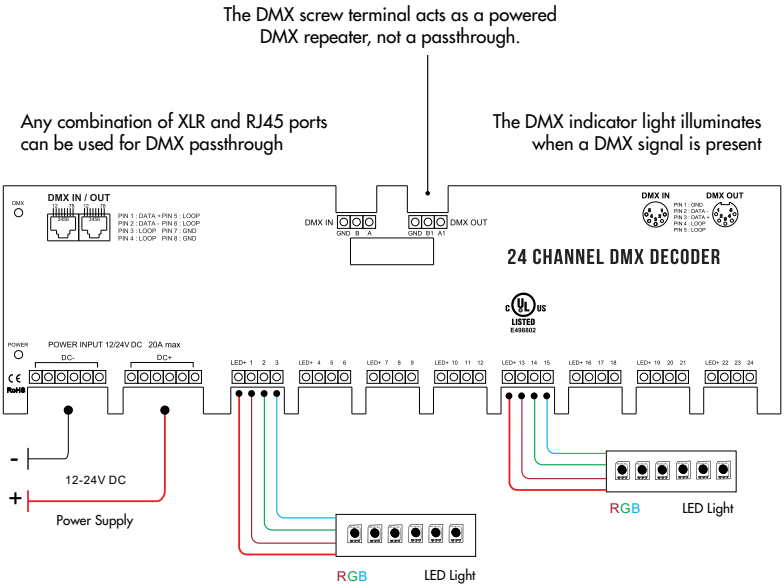
Wiring Diagram



There are six identical power input screw terminals tor connecting a 12/24V power supply. For high-current applications, make sure to use multiple screw terminals so that no single terminal is responsible for >20A of current.

A recommended 10 decoders maximum can be chained together on one DMX512 network. To add more unit loads, and for networks longer than 300 meters, a DMX repeater, amplifier, or opto-isolator is needed.

If the dimming console stops transmitting DMX data, the decoder will retain the last values it received until the device is powered off.

BETTER WAY LIGHTING

Safety Instructions

- Install in accordance with national and local electrical code regulations.
- This product is intended to be installed and serviced by a qualified, licensed electrician.
- DO NOT connect to high voltage power. Install with a compatible constant voltage power supply or battery with appropriate voltage.
- Only install compatible 12VDC or 24VDC constant voltage luminaires. Make sure to match power supply voltage to the requirements of the LED light. Ignoring this could lead to a potential fire hazard.
- This product is rated for indoor use only and is not protected against moisture.
- The device contains no user-serviceable parts. Attempts to modify the product beyond what is instructed will void the warranty.
- Follow polarity markers as shown on the device.
- Choose an appropriate wire gauge for the maximum potential current load, given your choice of power supply and lights. Keep in mind that the sum total current for all channels is carried over the shared LED+ terminal, so the total current over the LED+ conductor is typically the determining factor in cable choice. You may refer to an AWG table like this one.
- Ensure that power is disconnected whenever inserting or removing wires in screw terminals, or connectors in sockets.
- Ensure that all screw terminals are tightened and all connectors are fully inserted while in operation.

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- There is risk of injury, damage to the components involved, or poor dimming performance, if a lighting configuration is arranged to:

  i. Power one dimmer using two or more power supplies,
  ii. Power multiple dimmers from a single power supply, OR
  iii. Power the same circuit with multiple dimmers, or with multiple channels on one dimmer.

- Only a trained technician with sufficient knowledge of all components involved should ever attempt this.

Installation Procedure

- In the same way that long cable runs cause voltage drop, you may notice some voltage drop over a long enough strip of LED tape. This may manifest itself as progressively dimmer LEDs, or gradual colour shifts down the length of the tape. Options to mitigate the effects of voltage drop:

  - Break long runs into multiple shorter runs, powered by multiple decoders.
  - Power a long strip from the middle, so that the distance to each end is halved.
  - Ensure the length and gauge of head cables are consistent for all lights.
  - Situate the power supply and decoder closer to the light, reducing cable length.
  - Try a larger, higher current power supply.

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- Take the time to test each device ahead of time, especially if they must be installed in a location that is difficult to access.
- For rolls of LED tape, while still on the reel, you can power it on at a low level and view through the open side to check for any dead spots.
- When installing LED tape, if you have any concern that there might be a short circuit between the positive pad and any colour, check for this using a voltmeter before connecting a decoder. A short circuit between LED+ and any output terminal, even if on for only an instant, is likely to permanently damage the decoder.
- A maximum of 10 DMX Decoders may be connected together via the RJ45 or XLR DMX Connection Ports. DMX signal may be extended further by installing a DMX repeater or splitter after the 10th DMX Decoder.