FEATURES

03/08/24

**The Ultra LB-2108B-M6-3 is an Ultra-Pro 6CH RDM DMX512 decoder** equipped with master and decoder modes and RDM functionality. Encased in a metal housing and featuring a digital display, **it can directly display data and easily set and show DMX addresses.** This device offers multiple types of DMX input/output ports, including RJ45, XLR, and standard screws. It provides a total of 6 PWM output channels, all with common anode configuration. **The DMX channel quantity can be configured as either 1CH or 6CH, and the PWM output resolution ratio can be set to 8-bit or 16-bit**. With adjustable decoding modes, the output PWM frequency ranges from 500Hz to 35KHz, and the output dimming curve gamma value can be adjusted from 0.1 to 9.9.

- Master and decoder mode, RDM function.
- Metal housing with digital display, making it easy to set and display DMX address.
- Total of 6 PWM output channels, all with common anode configuration.
  DMX channel quantity can be set as either 1CH or 6CH.
- Multiple types of DMX input/output ports: RJ45, XLR, and standard screw terminals.
- PWM output frequency is settable from 500Hz to 35KHz.
- Output dimming curve gamma value is settable from 0.1 to 9.9.
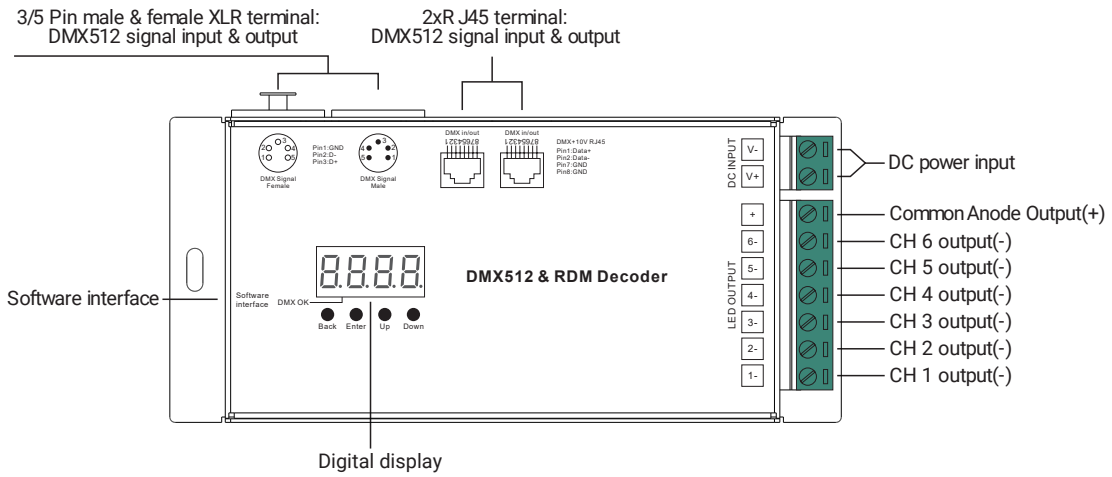- Decoding mode settable.
- Galvanic isolation.

DIMENSIONS

3.3"

7.3"

1.6"
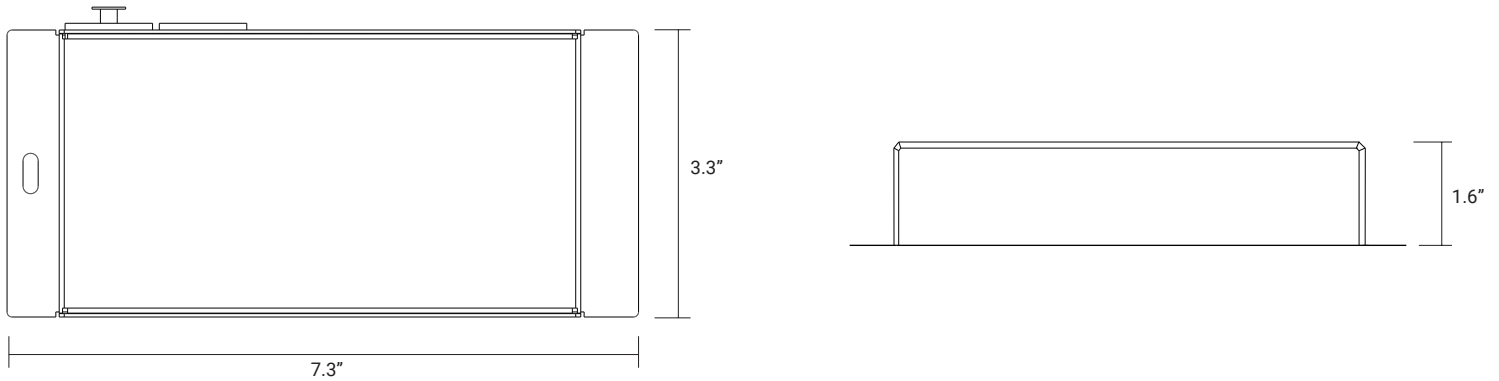
TECHNICAL DETAILS

Input Voltage	12-24 VDC	**Output PWM Frequency**	500HZ - 35K HZ settable
Output Current	6x6A	**Certifications**	FCC / RoHS
Output Power	6x(72-144)W	**Color**	Black
Dimensions	7.3"X3.3"X1.6"	**Warranty**	5 Years limited warranty

WIRING DIAGRAM

3/5 Pin male & female XLR terminal: DMX512 signal input & output

2xR J45 terminal: DMX512 signal input & output

Pin1:GND
Pin2:D-
Pin3:D+

DMX Signal Female

DMX Signal Male

DMX in/out

DMX+10V RJ45
Pin1:Data+
Pin2:Data-
Pin7:GND
Pin8:GND

DMX512 & RDM Decoder

Software interface

Software interface

DMX OK

Back   Enter   Up   Down

Digital display

DC INPUT   V-   V+

DC power input

LED OUTPUT
+   Common Anode Output(+)
6-   CH 6 output(-)
5-   CH 5 output(-)
4-   CH 4 output(-)
3-   CH 3 output(-)
2-   CH 2 output(-)
1-   CH 1 output(-)

Master mode.

DMX512 & RDM Decoder

run2

12V/24V CV PSU

CCT LED Strip

RGBW LED Strip

V+ → V+
CW- → CW-
WW- → WW-

V+ → V+
W- → W-
B- → B-
G- → G-
R- → R-

DMX512 & RDM Decoder

run1

12V/24V CV PSU

CCT LED Strip

RGBW LED Strip

Decoder mode.

DMX Master Console

DMX512 & RDM Decoder

run1

12V/24V CV PSU

CCT LED Strip

RGBW LED Strip

V+ → V+
CW- → CW-
WW- → WW-

V+ → V+
W- → W-
B- → B-
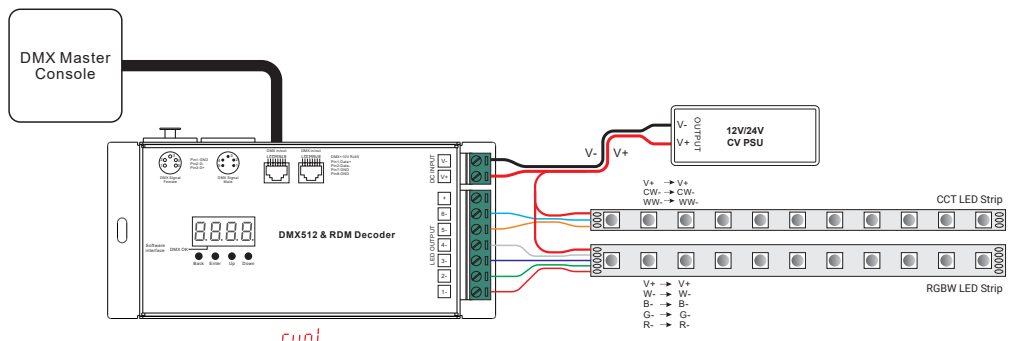G- → G-
R- → R-

OPERATION

Before proceeding with other settings, please ensure that the device is set to either Master or Decoder mode.

run1 = DMX Decoder mode , run2 = DMX Master mode(stand alone).

Continuously press the Down button to cycle through options until 'run1' or 'run2' is displayed. Press Enter to confirm your selection, and then use the Down button again to choose either 1 or 2. After making your selection, press the Back button.

Back Enter Up Down

1.In run2 DMX Master mode: After powering on the device, continue pressing the Up button. This will display the below menu options on the screen.

This section refers to the brightness settings for each output PWM channel. The first digit '1' corresponds to PWM output channel 1, which can be selected from channels 1 to 4 by using the 'UP' or 'Down' buttons.

The second part, '01', indicates the brightness level. After selecting the desired channel, press the 'Enter' button. The display will flash, indicating readiness for adjustment. Use the 'UP' or 'Down' buttons to select a brightness level ranging from 00 to 99, or 'FL' for full brightness (100%). Confirm your selection by pressing the 'Back' button."

Refers to chasing effects, there are a total of 4 effects selectable from 01 to 04. Use the "Up" or "Down" button to navigate the menu, then press the "Enter" button to enter into the effect. Afterwards, use the "Up" or "Down" button again to select from 01 to 04.

CA01: This effect includes a fade-up (0%-100%) and fade-down (100%-0%) sequence for each output, starting from output 1 and progressing to output 6. It then simultaneously fades up and down all outputs, followed by a cycling chase.

CA02: This effect begins with a fade-up (0%-100%) for output 1, followed by simultaneous fade-down (100%-0%) for output 1 and fade-up (0%-100%) for output 2, and so on. It ends with a cycling chase.

CA03: Starting with a fade-up (0%-100%) for output 1, this effect progresses through each output individually before simultaneously fading up all outputs. It concludes with a cycling chase.

CA04: This effect initiates with a fade-down (100%-0%) for output 1, followed by individual fades for each output. It then simultaneously fades down all outputs before ending with a cycling chase.

means chasing speed, it is selectable from 01-09, 01 is the slowest, 09 is the fastest.

II. For run1 DMX decoder mode: After select run1, if keep on clicking Up button, you will find below menu on display:

DMX signal indicator ● :: When DMX signal input is detected, the indicator on the display following after A turns on red A.XXX
If no DMX signal input is detected, the indicator will remain off, and the status will flash intermittently.

you will get this after power on the decoder, it means this decoder supports firmware OTA update function.

A.XXX   Means the DMX address default setting is 001.

CH.XX   Refers to the quantity of DMX channels. Factory default setting is CH 04

BE.XX   Means Bit (8bit or 16bit). factory defaults setting is 16bit

PF.XX   Refers to the output PWM frequency, with the factory default setting being 1 kHz.

GA.XX   Refers to the output dimming curve gamma value, with the factory default setting being gamma 1.5

dP.XX   Refers to the decoding mode, with the factory default setting being dp 1.1.

To restore to default settings, press and hold the Back + Enter buttons simultaneously for over 5 seconds until the display turns off.

OPERATION

Firmware OTA Update:

This function facilitates firmware updates provided by the manufacturer. The update process requires a Windows computer and a USB to serial port converter. The converter establishes a connection between the computer and the decoder's hard-wired DMX port. A software RS485-OTW on the computer is utilized to initiate the firmware transfer to the decoder.

To execute the update:

Connect the computer and the decoder via the USB to serial port converter.
If updating multiple decoders, connect the converter to the first decoder's DMX port.
Subsequently, connect the other decoders to the first decoder in a daisy chain configuration through the DMX port.
Note: It is essential not to power on the decoders during the update process.

To execute the firmware update process, run the OTA tool RS485-OTW on the computer. Select the correct communication port "USB-SERIAL", set the baud rate to "250000", and the data bit to "9", while maintaining default settings for other configurations. Click the "File" button to select the new firmware from the computer, then click "Open Port" to establish the connection. Once connected, click "Download Firmware" to initiate the transfer. The right-side state column will indicate "send link". Power on the decoders before "wait erase" displays on the state column; the digital display will show ⎕⎕P.⎕ . Upon "wait erase" appearing, indicating the start of the update, the OTA tool will write data to the decoders. The state column will show the progress, and upon completion, the digital display will flash ⎕⎕P.⎕ confirming a successful firmware update.

2. DMX address setting(Factory default is A001, address 001):

select menu A.XXX , click button "Enter", display flashes, then click or hold button "Up" / "Down"
to set DMX address (click is slow, hold is fast.), then click button"Back" to confirm.

3. DMX channel quantity setting(Factory default is CH06, 6 channels):

Select menu C.H.XX, click button "Enter", display flashes, then click button "Up" / "Down"
to set DMX channel quantity , then click button "Back" to confirm.
For example the DMX address is already set 001.
CH01=1 DMX address for all the output channels, which are all address 001.
CH06=6 DMX addresses, output 1, 2, 3, 4, 5, 6 is address 001, 002, 003, 004, 005, 006.

**4. PWM output resolution Bit setting(Factory default is bt16, 16 bit):**

select menu b.t.XX , click button "Enter",display flashes, then click button "Up" / "Down"
to choose 08 or 16 bit, then click button"Back" to confirm.

5. output PWM frequency setting(Factory default is PF01, 1kHZ):

select menu P.F.XX , click button "Enter", display flashes,then click button "Up" / "Down"to choose 00~35,
then click button"Back" to confirm. 00=500HZ, 01=1kHZ, 02=2kHZ.....25=25kHZ, 35=35kHZ.

6. output dimming curve gamma value setting(Factory default is gA1.5):

select menu g.A.XX , click button "Enter", display flashes, then click or hold button "Up" / "Down"
to choose 0.1~9.9, then click button"Back" to confirm.
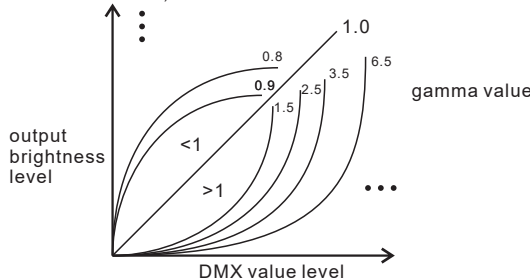
7. DMX decoding mode setting:

Select menu d.P.XX , click button "Enter", display flashes, then click or hold button "Up" / "Down"to choose the
decoding mode, then click button"Back" to confirm. " dPxx" means the DMX address quantity used for control of
corresponding PWM output channel quantity. 1st "x" is DMX address quantity, 2nd "x" is PWM channel quantity.

The fine dimming effect becomes noticeable when the dimming curve gamma value is set below 1.4. Additionally, the lower the gamma value, the more pronounced the fine dimming effect becomes.

OPERATION

DMX address is 001, CH01

DMX Console Slider number / DMX channel	dp1.1	dp2.1
1	for all outputs dimming	for all outputs dimming
2	No use	for all outputs fine dimming

DMX address is 001, CH06

DMX Console Slider number / DMX channel	dp1.1	dp7.1	dpA.1	dpA.2	dpA.3	dpA.4	dpA.6
1	for output 1 dimming	for output 1 dimming	for output 1 dimming	for output 1 dimming	for output 1 dimming	for output 1 dimming	for outputs 1+2 color tuning
2	for output 2 dimming	for output 2 dimming	for output 2 dimming	for output 2 dimming	for output 2 dimming	for output 2 dimming	for outputs 1&2 master dimming
3	for output 3 dimming	for output 3 dimming	for output 3 dimming	for outputs 1&2 master dimming	for output 3 dimming	for output 3 dimming	for outputs 3+4 color tuning
4	for output 4 dimming	for output 4 dimming	for output 4 dimming	for output 3 dimming	for outputs 1&3 master dimming	for output 4 dimming	for outputs 3&4 master dimming
5	for output 5 dimming	for output 5 dimming	for output 5 dimming	for output 4 dimming	for output 4 dimming	for outputs 1&4 master dimming	for outputs 5+6 color tuning
6	for output 6 dimming	for output 6 dimming	for output 6 dimming	for outputs 3&4 master dimming	for output 5 dimming	for output 5 dimming	for outputs 5&6 master dimming
7		for all outputs master dimming	for all outputs master dimming	for output 5 dimming	for output 6 dimming	for output 6 dimming	No use
8			strobe effects	for output 6 dimming	for outputs 4&6 master dimming	for outputs 5&6 master dimming	No use
9			No use	for outputs 5&6 master dimming	strobe effects	No use	No use
10			No use	No use	No use	No use	No use

RDM Discovery Indication:

When utilizing RDM to discover the device, both the digital display and the connected lights will flash simultaneously at the same frequency. This flashing indicates the discovery process. Once the display stops flashing, the connected lights will also cease flashing, indicating the completion of the discovery process.

The data definitions for strobe channel are as follows:

{0, 7},//undefined
{8, 65},//slow strobe-->fast strobe
{66, 71},//undefined
{72, 127},//slow push fast close
{128, 133},//undefined
{134, 189},//slow close fast push
{190, 195},//undefined
{196, 250},//random strobe
{251, 255},//undefined

To restore to factory default settings:

Press and hold down both the "Back" and "Enter" keys until the digital display turns off.
Release the keys. The system will reset, and the digital display will turn on again.
All settings will be restored to factory defaults.
Default settings:

DMX Address Code: a001
DMX Address Quantity: SW1=0: ch06, SW1=1: ch01
PWM Resolution Mode: bt16
PWM Frequency: F010
Gamma: ga1.5
Decoding Mode: dp1.1"