# Ultra-Pro 24CH RDM DMX512 Decoder

70060027-HD

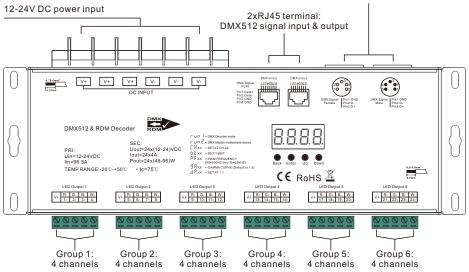




Important: Read All Instructions Prior to Installation

#### **Function introduction**

XLR3/XLR5 terminal: DMX512 signal input & output



#### **Product Data**

Input Voltage	Output Current	Output Power	Remarks	Size(LxWxH)	Protection
12-24VDC	24x4A	24x(48-96)W	Constant voltage	264.5X83X42mm	Short circuit

- · Master & decoder mode. RDM function
- · Metal housing, digital display to show data directly, easily to set and show DMX address.
- With multiple kinds of DMX in/out ports: RJ 45, XLR, pluggable terminal blocks.
- Total 24 PWM output channels, common anode. DMX channel quantity 1CH or 24CH settable
- PWM output resolution ratio 8bit, 16bit settable.
- Output PWM frequency from 500HZ ~ 35K HZ settable.
- Output dimming curve gamma value from 0.1 ~ 9.9 settable.
- Decoding mode settable.
- · Galvanic isolation

## Safety & Warnings

- DO NOT install with power applied to device.
- DO NOT expose the device to moisture.

# Operation

Before you do other settings, please set the device to be Master or Decoder mode.

Keep on clicking Down button, to get run1 or run2, then click Enter, then click Down button to choose 1 or 2, then click Back button.



I. For run2 DMX Master mode: After set the device as run2 (Master mode), if keep on clicking Up button, you will find below menu on display:

📮 Means brightness for each output PWM channel. First 01 means PWM output channel 1 and it is selectable from 01 to 24 by clicking "UP" or "Down" button. Second 01 means brightness level, click "Enter" button, the display flashes, then click "UP" or "Down" button to select from 00-99-FL, which means 0%-99%-100% brightness, then click "Back" button to confirm.

means chasing effects, total 4 effects selectable from 01-04. Click "Up" or "Down" button to select the menu, then click "Enter" button to enter into the effect, then click "Up" or "Down" button to select from 01-04.

CA01: Fade-up (0%-100%) and fade-down (100%-0%) of output 1, then output 2, output 3, ...... output 24, output 1. ....., cycling chasing

CA02: Fade-up (0%-100%) of output 1, then simultaneous fade-down (100%-0%) of output 1 and fade-up (0%-100%) of output 2, simultaneous down of output 2 and up of output 3, ....., simultaneous down of output 23 and up of output 24, simultaneous down of output 24 and up of output 1, ...... cycling chasing

CA03: Fade-up (0%-100%) of output 1, then output 2, output 3, ....., output 24, output 1, ....., cycling chasing CA04: Fade-down (100%-0%) of output 1, then output 2, output 3, ....., output 24, output 1, ....., cycling chasing

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

II. For run1 DMX decoder mode: After set the device as run1 (Decoder mode), if keep on clicking Up button, vou will find below menu on display:

DMX signal indicator • : When DMX signal input is detected, the indicator on the display following after 🖁 turns on red  $\mathcal{H}_{XXX}$ , if there is no DMX signal input, the indicator will not turn on, and the character  $\mathcal{H}$  will flash.

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

XXX Means DMX address. factory defaults setting is 001.

XX Means DMX channels quantity. factory defaults setting is Ch24

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

Reans output PWM frequency. factory defaults setting is 10K HZ

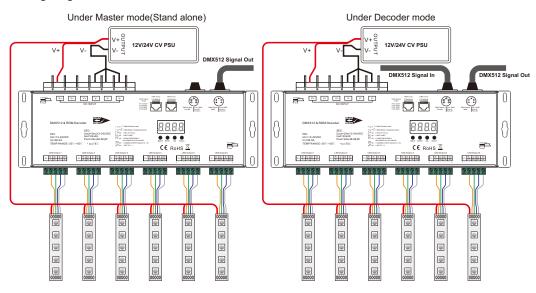
Reans output dimming curve gamma value, factory defaults setting is ga 1.5

Means Decoding mode, factory defaults setting is dp1.1

Means the device at run1 mode (DMX decoder mode).

By holding button Back + Enter together at the same time over 5 seconds until the display go off, it will restore default settings.

## Wiring diagram



## 1. Firmware OTA update:

This function can be used when there is a firmware update from the manufacturer, the update can be executed through a Windows computer and an USB to serial port converter, the converter will connect the computer and the decoder's hard wire DMX port. A software RS485-OTW on the computer will be used to push the firmware to the decoder.

Connect the computer and the decoder through the USB to serial port converter, if you need to update multiple decoders' firmware, connect the converter to first decoder's DMX port, then connect other decoders to the first decoder in daisy chain through the DMX port. Please do not power on the decoders.

### 2. DMX address setting:

Select menu 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:

Select menu 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 as 001.

CH01=1  $\dot{\rm D}$ MX address for all the output channels, which are all address 001.

CH04=4 DMX addresses, output channels 1, 5, 9, 13, 17, 21 are address 001, output channels 2, 6, 10, 14, 18, 22 are address 002, output channels 3, 7, 11, 15, 19, 23 are address 003, output channels 4, 8, 12, 16, 20, 24 are address 004.

CH24=24 DMX addresses, output 1-24 is address 001-024 respectively.

## 4. PWM output resolution Bit setting:

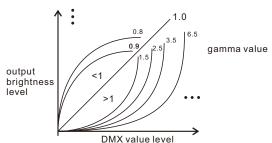
Select menu XX, click button "Enter", display flashes, then click button "Up" / "Down" to choose 08 or 16 bit, then click button "Back" to confirm.

## 5. Output PWM frequency setting:

Select menu 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:

Select menu 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 XX, click button "Enter", display flashes, then click 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.

Fine dimming: the fine dimming effect can only be visible when the dimming curve gamma value is set lower than 1.4, and the lower the value is, the more visible the fine dimming effect will be.

#### DMX address is 001, CH24

DMX Console Slider number	dp1.1	dp2.1	dp3.2	dp3.4	dp4.3	dp5.3	dp5.4	dp6.4	dp8.6	dp9.6
MX channel	·				,	,		·	·	
1	output 1 dimming	output 1 dimming	output 1&2 dimming	output 1&2 &3&4 dimming	output 1&2 &3 dimming	output 1&2 &3 dimming	output 1&2 &3&4 dimming	output 1&2 &3&4 dimming	output 1&2 &3&4 dimming	output 1&2 &3&4 dimming
2	output 2 dimming	output 1 fine dimming	output 1 dimming	output 1 &3 dimming	output 1 dimming	output 1 dimming	output 1 dimming	output 1 dimming	output 1 dimming	output 1 dimming
3	output 3	output 2	output 2	output 2&4	output 2	output 2	output 2	output 2	output 2	output 2
4	dimming output 4	dimming output 2	dimming output 3&4	dimming output 5&6	dimming output 3	dimming output 3	dimming output 3	dimming output 3	dimming output 3	dimming output 3
	dimming output 5	fine dimming output 3	dimming output 3	&7&8 dimming output 5&7	dimming output 4&5	dimming output 1&2	dimming output 4	dimming output 4	dimming output 4	dimming output 4
5	dimming	dimming	dimming	dimming	&6 dimming	&3 strobe effects	dimming	dimming	dimming	dimming
6	output 6 dimming	output 3 fine dimming	output 4 dimming	output 6 &8 dimming	output 4 dimming	output 4&5 &6 dimming	output 5&6 &7&8 dimming	output 1&2&3 &4 strobe effects	output 5&6 dimming	output 5&6 dimming
7	output 7 dimming	output 4 dimming	output 5&6 dimming	output 9&10&11 &12 dimming	output 5 dimming	output 4 dimming	output 5 dimming	output 5&6 &7&8 dimming	output 5 dimming	output 5 dimming
8	output 8 dimming	output 4 fine dimming	output 5 dimming	output 9&11 dimming	output 6 dimming	output 5 dimming	output 6 dimming	output 5 dimming	output 6 dimming	output 6 dimming
9	output 9	output 5	output 6	output 10	output 7&8	output 6	output 7	output 6	output 7&8&9	output 1&2&3&4
	dimming output 10	dimming output 5	dimming output 7&8	&12 dimming output 13&14&	&9 dimming output 7	dimming output 4&5	dimming output 8	dimming output 7	&10 dimming output 7	&5&6 strobe effects output 7&8&9
10	dimming output 11	fine dimming output 6	dimming	15&16 dimming output 13&15	dimming output 8	&6 strobe effects output 7&8	dimming output 9&10&11	dimming output 8	dimming	&10 dimming
11	dimming	dimming	output 7 dimming	dimming	dimming	&9 dimming	&12 dimming	dimming	output 8 dimming	output 7 dimming
12	output 12 dimming	output 6 fine dimming	output 8 dimming	output 14 &16 dimming	output 9 dimming	output 7 dimming	output 9 dimming	output 5&6&7 &8 strobe effects	output 9 dimming	output 8 dimming
13	output 13 dimming	output 7 dimming	output 9&10 dimming	output 17&18& 19&20 dimming	output 10&11 &12 dimming	output 8 dimming	output 10 dimming	output 9&10 &11&12 dimming	output 10 dimming	output 9
14	output 14	output 7	output 9	output 17&19	output 10	output 9	output 11	output 9	for output 11	dimming output 10
	dimming output 15	fine dimming output 8	dimming output 10	dimming output 18	dimming output 11	dimming output 7&8&9	dimming output	dimming output 10	&12 dimming for output 11	dimming output 11&12
15	dimming output 16	dimming output 8	dimming output 11&12	&20 dimming output 21&22&	dimming output 12	strobe effects output 10&11&	12 dimming output 13&14&	dimming output 11	dimming for output 12	dimming output 11
16	dimming	fine dimming	dimming	23&24 dimming	dimming	12 dimming	15&16 dimming	dimming output 12	dimming	dimming
17	output 17 dimming	output 9 dimming	output 11 dimming	output 21&23 dimming	output 13&14 &15 dimming	output 10 dimming	output 13 dimming	output 12 dimming	output 13&14& 15&16 dimming	output 12 dimming
18	output 18 dimming	output 9	output 12	output 22 &24 dimming	output 13 dimming	output 11	output 14 dimming	output 9&10&11	output 13	output 7&8&9&10
19	output 19	fine dimming output 10	dimming output 13&14	&24 dillillilling	output 14	dimming output 12	output 15	&12 strobe effects output 13&14	dimming output 14	<u>&amp;11&amp;12 strobe effects</u> output 13&14&15
	dimming output 20	dimming output 10	dimming output 13		dimming output 15	dimming output 10&11&12	dimming output	&15&16 dimming output 13	dimming output 15	&16 dimming output 13
20	dimming output 21	fine dimming output 11	dimming output 14		dimming output 16&17	strobe effects output 13&14&	16 dimming output 17&18&	dimming output 14	dimming output 16	dimming output 14
21	dimmina	dimming	dimming		&18 dimming	15 dimming	19&20 dimming	dimming	dimming	dimming
22	output 22 dimming	output 11 fine dimming	output 15&16 dimming		output 16 dimming	output 13 dimming	output 17 dimming	output 15 dimming	for output 17 &18 dimming	output 15 dimming
23	output 23	output 12 dimming	output 15		output 17	output 14	output 18	output 16 dimming	for output 17	output 16
24	dimming output 24	output 12	dimming output 16		dimming output 18	dimming output 15	dimming output 19	output 13&14&15	dimming for output 18	dimming output 17&18
	dimming	fine dimming output 13	dimming output 17&18		dimming output 19&20	dimming output 13&14&15	dimming output	&16 strobe effects output 17&18	dimming output 19&20&	dimming output 17
25		dimming output 13	dimming output 17		&21 dimming output 19	strobe effects output 16&17&	20 dimming output 21&22&	&19&20 dimming output 17	21&22 dimming output 19	dimming
26		fine dimming	dimming		dimming	18 dimming	23&24 dimming	dimming	dimming	output 18 dimming
27		output 14 dimming	output 18 dimmina		output 20 dimming	output 16 dimming	output 21 dimming	output 18 dimming	output 20 dimmina	output 13&14&15&16 &17&18 strobe effects
28		output 14 fine dimming	output 19&20 dimming		output 21 dimming	output 17 dimming	output 22	output 19	dimming output 21	output 19&20&21 &22 dimming
29		output 15	output 19		output 22&23	output 18	dimming output 23	dimming output 20	dimming output 22	output 19
		dimming output 15	dimming output 20		&24 dimming output 22	dimming output 16&17&18	dimming output	dimming output 17&18&19	dimming output 23&24	dimming output 20
30		fine dimming output 16	dimming		dimming output 23	strobe effects output 19&20&	24 dimming	&20 strobe effects output 21&22	dimming	dimming output 21
31		dimming	output 21&22 dimming		dimming	21 dimming		&23&24 dimming	output 23 dimming output 24	dimming output 22
32		output 16 fine dimming	output 21 dimming		output 24 dimming	output 19 dimming		output 21 dimming	output 24 dimming	output 22 dimming
33		output 17 dimming	output 22 dimming			output 20 dimming		output 22 dimming		output 23&24 dimming
34		output 17	output 23&24			output 21		output 23		output 23
35		fine dimming output 18	dimming output 23			dimming output 19&20&21		dimming output 24		dimming output 24
		dimming output 18	dimming output 24			strobe effects output 22&23&		dimming output 21&22&23		dimming output 19&20&21&22
36		fine dimming	dimming			24 dimming		&24 strobe effects		&23&24 strobe effects
37		output 19 dimming				output 22 dimming				
38		output 19 fine dimming				output 23 dimming				
39		output 20				output 24				
40		dimming output 20				dimming output 22&23&24				
		fine dimming output 21				strobe effects				
41		dimming								
42		output 21 fine dimming								
43		output 22 dimming								
44		output 22								
		fine dimming output 23								
45		dimming								
46		output 23 fine dimming								
		output 24								· · · · · · · · · · · · · · · · · · ·
47		dimming								

## DMX address is 001, CH01

DMX Console Slider number DMX channel	dp1.1	dp2.1	dp2.2	dp3.1
1	all output dimming	all output dimming	all output dimming	all output dimming
2		all output fine dimming	all output strobe effects	all output fine dimming
3				all output strobe effects

## DMX address is 001, CH04

DMX Console Slider number DMX channel	dp1.6		
1	output 1, 5, 9, 13, 17, 21 dimming		
2	output 2, 6, 10, 14, 18, 22 dimming		
3	output 3, 7, 11, 15, 19, 23 dimming		
4	output 4, 8, 12, 16, 20, 24 dimming		

#### 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

## The supported RDM PIDs are as follows:

DISC\_UNIQUE\_BRANCH
DISC\_MUTE
DISC\_MUTE
DEVICE INFO
DMX\_START\_ADDRESS
IDENTIFY\_DEVICE
SOFTWARE\_VERSION\_LABEL
DMX\_PERSONALITY\_
DMX\_PERSONALITY\_DESCRIPTION
SLOT\_INFO
SLOT\_DESCRIPTION
MANUFACTURER\_LABEL
SUPPORTED\_PARAMETERS
MODULATION\_FREQUENCY
MODULATION\_FREQUENCY\_DESCRIPTION
CURVE
CURVE\_DESCRIPTION

## **RDM Discovery Indication:**

When using RDM to discover the device, the digital display will flash and the connected lights will also flash at the same frequency to indicate. Once the display stops flashing, the connected light also stops flashing.

### Short circuit protection

If short circuit of the connected load is detected, the display will flash to alarm and the load will be forced to open circuit status. Once the fault is removed, the decoder will recover after re-powered on.

#### **Restore to Factory Default Setting**

Press and hold down both "Back" and "Enter" keys until the digital display turns off, then release the keys, system will reset and the digital display will turn on again, all settings will be restored to factory default.

Default settings are as follows:

DMX Address Code: a001

DMX Address Quantity: SW1=0: ch24, SW1=1: ch01

PWM Resolution Mode: bt16

PWM Frequency: pf10

Gamma: ga1.5

Decoding Mode: dp1.1