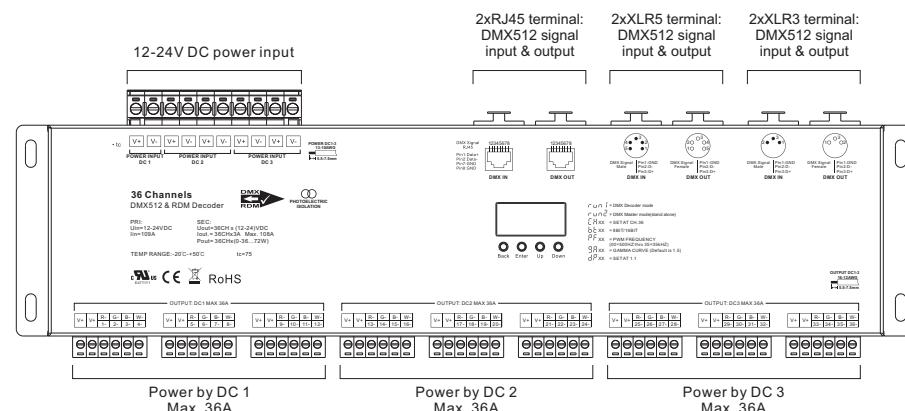


## Ultra-Pro 36CH RDM DMX512 Decoder



**Important:** Read All Instructions Prior to Installation

### Function introduction



### Product Data

Input Voltage	Output Current	Output Power	Remarks	Size(LxWxH)	Protection
12-24VDC	36x3A	36x(36-72)W	Constant voltage	393.2x117x37mm	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, XLR3, XLR5 terminal blocks.
- Total 36 PWM output channels, common anode. DMX channel quantity 1CH or 36CH 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.

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

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:

**0808** Means brightness for each output PWM channel. First 01 means PWM output channel 1 and it is selectable from 01 to 36 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.

**0808** 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 36, 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 35 and up of output 36, simultaneous down of output 36 and up of output 1, ...., cycling chasing

CA03: Fade-up (0%-100%) of output 1, then output 2, output 3, ...., output 36, output 1, ...., cycling chasing

CA04: Fade-down (100%-0%) of output 1, then output 2, output 3, ...., output 36, output 1, ...., cycling chasing

**SP08** means chasing speed, it is 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, you will find below menu on display:

DMX signal indicator **●** : When DMX signal input is detected, the indicator on the display following after **0** turns on red **0XXX** , if there is no DMX signal input, the indicator will not turn on, and the character **0** will flash.

**0808** you will get this after power on the decoder, it means this decoder supports firmware OTA update function.

**0XXX** Means DMX address. factory defaults setting is 001.

**0HXX** Means DMX channels quantity. factory defaults setting is CH36

**0BXX** Means Bit (8bit or 16bit). factory defaults setting is 16bit

**0PXX** Means output PWM frequency. factory defaults setting is 10K HZ. PF00=500Hz, PF01=1KHz, PF02=2KHz, PF03=3KHz,..., PF35=35KHz.

**0BXX** Means output dimming curve gamma value, factory defaults setting is ga 1.5

**0PXX** Means Decoding mode, factory defaults setting is dp.1

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

**Lock the button:** Press and hold down both "Back" and "Down" keys for 3s, the display you show **0808** . Under this state there will be no reaction when you play any buttons.

**Unlock the button:** Press and hold down both "Back" and "Down" keys for 3s.

**Test Mode:** Press and hold down both "Back" and "Up" keys for 3s, the display you show **0808** . Under this state, all output channels will light on and off one by one.

**Quit Test Mode:** Press and hold down both "Back" and "Up" keys for 3s.

#### 1. DMX address setting:

Select menu **0 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.

#### 2. DMX channel quantity setting:

Select menu **0HXX** , 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 DMX address for all the output channels, which are all address 001.

CH02=2 DMX addresses,  
DMX address 001= Channels (1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35),  
DMX address 002= Channels (2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36).

CH03=3 DMX addresses,  
DMX address 001= Channels (1, 5, 9, 13, 17, 21, 25, 29, 33),  
DMX address 002= Channels (2, 6, 10, 14, 18, 22, 26, 30, 34),  
DMX address 003= Channels (3, 7, 11, 15, 19, 23, 27, 31, 35).  
Output channels 4, 8, 12, 16, 20, 24, 28, 32, 36 are not controlled.

CH04=4 DMX addresses,  
DMX address 001= Channels (1, 5, 9, 13, 17, 21, 25, 29, 33),  
DMX address 002= Channels (2, 6, 10, 14, 18, 22, 26, 30, 34),  
DMX address 003= Channels (3, 7, 11, 15, 19, 23, 27, 31, 35),  
DMX address 004= Channels (4, 8, 12, 16, 20, 24, 28, 32, 36).

CH06=6 DMX addresses,  
 DMX address 001= Channels (1, 7, 13, 19, 25, 31), DMX address 002= Channels (2, 8, 14, 20, 26, 32),  
 DMX address 003= Channels (3, 9, 15, 21, 27, 33), DMX address 004= Channels (4, 10, 16, 22, 28, 34),  
 DMX address 005= Channels (5, 11, 17, 23, 29, 35), DMX address 006= Channels (6, 12, 18, 24, 30, 36).

CH12=12 DMX addresses,  
 DMX address 001= Channels (1, 13, 25), DMX address 002= Channels (2, 14, 28),  
 DMX address 003= Channels (3, 15, 27), DMX address 004= Channels (4, 16, 28),  
 DMX address 005= Channels (5, 17, 29), DMX address 006= Channels (6, 18, 30),  
 DMX address 007= Channels (7, 19, 31), DMX address 008= Channels (8, 20, 32),  
 DMX address 009= Channels (9, 21, 33), DMX address 010= Channels (10, 22, 34),  
 DMX address 011= Channels (11, 23, 35), DMX address 012= Channels (12, 24, 36).

CH24=24 DMX addresses,  
 DMX address 001= Channels (1, 25), DMX address 002= Channels (2, 26), DMX address 003= Channels (3, 27),  
 DMX address 004= Channels (4, 28), DMX address 005= Channels (5, 29), DMX address 006= Channels (6, 30),  
 DMX address 007= Channels (7, 31), DMX address 008= Channels (8, 32), DMX address 009= Channels (9, 33),  
 DMX address 010= Channels (10, 34), DMX address 011= Channels (11, 35), DMX address 012= Channels (12, 36),  
 DMX address 013= Channels (13), DMX address 014= Channels (14), DMX address 015= Channels (15),  
 DMX address 016= Channels (16), DMX address 017= Channels (17), DMX address 018= Channels (18),  
 DMX address 019= Channels (19), DMX address 020= Channels (20), DMX address 021= Channels (21),  
 DMX address 022= Channels (22), DMX address 023= Channels (23), DMX address 024= Channels (24),

CH36=36 DMX addresses, output 1-36 is address 001-036 respectively.

#### 3. PWM output resolution Bit setting:

Select menu **88XX**, click button "Enter", display flashes, then click button "Up" / "Down" to choose 08 or 16 bit, then click button "Back" to confirm.

#### 4. Output PWM frequency setting:

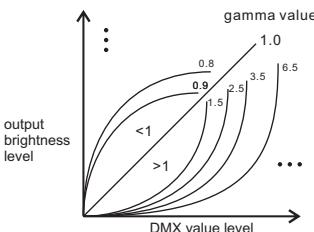
Select menu **88XX**, click button "Enter", display flashes, then click button "Up" / "Down" to choose 00~35, then click button "Back" to confirm. 00=500Hz, 01=1KHZ, 02=2KHZ.....25=25KHZ, 35=35KHZ.

#### 5. Output dimming curve gamma value setting:

Select menu **98XX**, click button "Enter", display flashes, then click or hold button "Up" / "Down" to choose 0.1~9.9, then click button "Back" to confirm.

#### 6. DMX decoding mode setting:

Select menu **88XX**, 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, CH01

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= All output dimming
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= All output dimming, Slider 2= All output fine dimming
dp2.2	Use 2 console sliders to control 1 DMX address	Slider 1= All output dimming, Slider 2= All output strobe effects
dp3.1	Use 3 console sliders to control 1 DMX address	Slider 1= All output dimming, Slider 2= All output fine dimming, Slider 3= All output strobe effects

#### DMX address is 001, CH02

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 002 dimming
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming, Slider 3= Address 002 dimming, Slider 4= Address 002 fine dimming
dp2.2	Use 2 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 dimming, Slider 2= Address 001, 002 color tuning
dp3.2	Use 3 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming
dp4.2	Use 4 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming, Slider 4= Address 001, 002 strobe effects

#### DMX address is 001, CH03

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming,...., Slider 3= Address 003 dimming...
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming,...., Slider 5= Address 003 dimming, Slider 6= Address 003 fine dimming
dp4.3	Use 4 console sliders to control 3 DMX addresses	Slider 1= Address 001-003 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming, Slider 4= Address 003 dimming
dp5.3	Use 5 console sliders to control 3 DMX addresses	Slider 1= Address 001-003 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 5= Address 003 strobe effects

#### DMX address is 001, CH04

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming,...., Slider 4= Address 004 dimming...
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming,...., Slider 7= Address 004 dimming
dp2.2	Use 2 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 dimming, Slider 2= Address 001, 002 color tuning,...., Slider 3= Address 003, 004 dimming, Slider 4= Address 003, 004 color tuning
dp3.2	Use 3 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 6= Address 004 dimming
dp4.2	Use 4 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 4= Address 001, 002 strobe effects
dp5.4	Use 5 console sliders to control 4 DMX addresses	Slider 1= Address 001-004 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 5= Address 004 dimming
dp6.4	Use 6 console sliders to control 4 DMX addresses	Slider 1= Address 001-004 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 6= Address 004 strobe effects

#### DMX address is 001, CH06

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 002 dimming...
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming,...., Slider 11= Address 006 dimming, Slider 12= Address 006 fine dimming
dp2.2	Use 2 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 dimming, Slider 2= Address 001, 002 color tuning,...., Slider 5= Address 005, 006 dimming, Slider 6= Address 005, 006 color tuning
dp3.2	Use 3 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 9= Address 006 dimming
dp4.2	Use 4 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 4= Address 001, 002 strobe effects
dp7.6	Use 7 console sliders to control 6 DMX addresses	Slider 1= Address 001-006 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 7= Address 006 dimming
dp8.6	Use 8 console sliders to control 6 DMX addresses	Slider 1= Address 001-006 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 8= Address 001-006 strobe effects

#### DMX address is 001, CH12

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 002 dimming...
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming
dp2.2	Use 2 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 dimming, Slider 2= Address 001, 002 color tuning
dp3.2	Use 3 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming
dp4.2	Use 4 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 4= Address 001, 002 strobe effects
dp4.3	Use 4 console sliders to control 3 DMX addresses	Slider 1= Address 001-003 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming, Slider 4= Address 003 dimming
dp5.3	Use 5 console sliders to control 3 DMX addresses	Slider 1= Address 001-003 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 5= Address 003 strobe effects
dp5.4	Use 5 console sliders to control 4 DMX addresses	Slider 1= Address 001-004 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 5= Address 004 dimming
dp6.4	Use 6 console sliders to control 4 DMX addresses	Slider 1= Address 001-004 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 6= Address 001-004 strobe effects
dp7.6	Use 7 console sliders to control 6 DMX addresses	Slider 1= Address 001-006 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 7= Address 006 dimming
dp8.6	Use 8 console sliders to control 6 DMX addresses	Slider 1= Address 001-006 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,...., Slider 8= Address 001-006 strobe effects

DMX address is 001, CH24

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming,...., Slider 24= Address 024 dimming
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming...
dp2.2	Use 2 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 dimming, Slider 2= Address 001,002 color tuning
dp3.2	Use 3 console sliders to control 2 DMX addresses	Slider 1=Address 001, 002 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming.
dp4.2	Use 4 console sliders to control 2 DMX addresses	Slider 1=Address 001, 002 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming, Slider 4=Address 001, 002 strobe effects.
dp4.3	Use 4 console sliders to control 3 DMX addresses	Slider 1=Address 001-003 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming, Slider 4=Address 003 dimming.
dp5.3	Use 5 console sliders to control 3 DMX addresses	Slider 1=Address 001-003 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming,...., Slider 5=Address 001-003 strobe effects.
dp5.4	Use 5 console sliders to control 4 DMX addresses	Slider 1=Address 001-004 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming, Slider 5=Address 004 dimming.
dp6.4	Use 6 console sliders to control 4 DMX addresses	Slider 1=Address 001-004 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming,..., Slider 6=Address 001-004 strobe effects.
dp7.6	Use 7 console sliders to control 6 DMX addresses	Slider 1=Address 001-006 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming,..., Slider 7=Address 006 dimming.
dp8.6	Use 8 console sliders to control 6 DMX addresses	Slider 1=Address 001-006 master dimming, Slider 2=Address 001 dimming, Slider 3=Address 002 dimming,..., Slider 8=Address 001-006 strobe effects.

DMX address is 001. CH36

dP Setting	Describe	Example
dp1.1	Use 1 console slider to control 1 DMX address	Slider 1= Address 001 dimming,..., Slider 36= Address 036 dimming
dp2.1	Use 2 console sliders to control 1 DMX address	Slider 1= Address 001 dimming, Slider 2= Address 001 fine dimming...
dp2.2	Use 2 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 dimming, Slider 2= Address 001,002 color tuning
dp3.2	Use 3 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming.
dp4.2	Use 4 console sliders to control 2 DMX addresses	Slider 1= Address 001, 002 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming, Slider 4= Address 001, 002 strobe effects.
dp4.3	Use 4 console sliders to control 3 DMX addresses	Slider 1= Address 001-003 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming, Slider 4= Address 003 dimming.
dp5.3	Use 5 console sliders to control 3 DMX addresses	Slider 1= Address 001-003 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,..., Slider 5= Address 001-003 strobe effects.
dp5.4	Use 5 console sliders to control 4 DMX addresses	Slider 1= Address 001-004 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming, Slider 5= Address 004 dimming.
dp6.4	Use 6 console sliders to control 4 DMX addresses	Slider 1= Address 001-004 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,..., Slider 6= Address 001-004 strobe effects.
dp7.6	Use 7 console sliders to control 6 DMX addresses	Slider 1= Address 001-006 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,..., Slider 7= Address 006 dimming.
dp8.6	Use 8 console sliders to control 6 DMX addresses	Slider 1= Address 001-006 master dimming, Slider 2= Address 001 dimming, Slider 3= Address 002 dimming,..., Slider 8= Address 001-006 strobe effects.

## 7. 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.

Run the OTA tool RS485-OTW on the computer, select the correct communication port "USB-SERIAL", baudrate "250000" and data bit "9", use default settings for other configurations. Then click "file" button to select the new firmware from the computer, then click "Open Port", the firmware will be loaded. Then click "Download Firmware", the right side state column of the OTA tool will show "send link". Then power on the decoders before "wait erase" displaying on the state column, the digital display of the decoders will show **0000**. Then "wait erase" will show on the state column, which means the updating starts. Then the OTA tool starts writing data to the decoders, the state column will show the progress, once writing data finishes, the digital display of the decoders will flash **1111**, which means firmware updated successfully.

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_UN_MUTE
DEVICE_INFO
DMX_START_ADDRESS
IDENTIFY_DEVICE
SOFTWARE_VERSION_LABEL
DMX_PERSONALITY
DMX_PERSONALITY_DESCRIPTION
SLOT_INFO
SLOT_DESCRIPTION
OUT_RESPONSE_TIME
OUT_RESPONSE_TIME_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

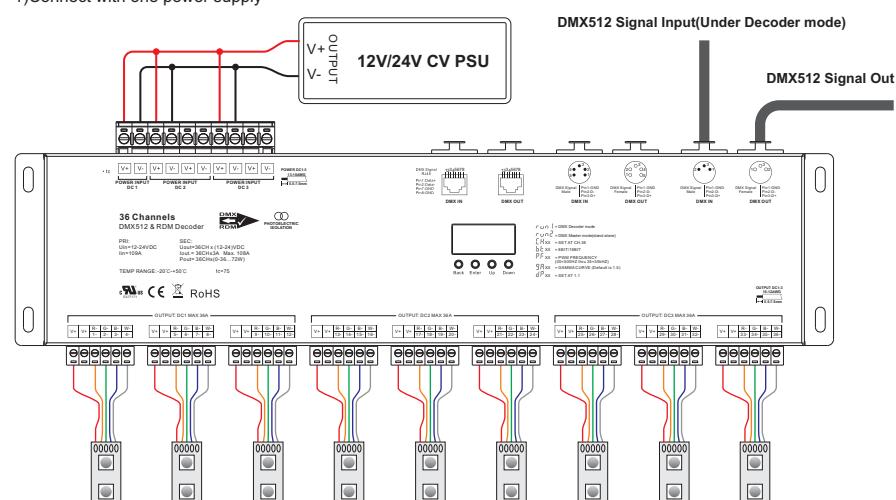
## PWM Resolution PWM Frequency

PWM Frequency:  $\mu$ 10  
Gamma: ga1.5

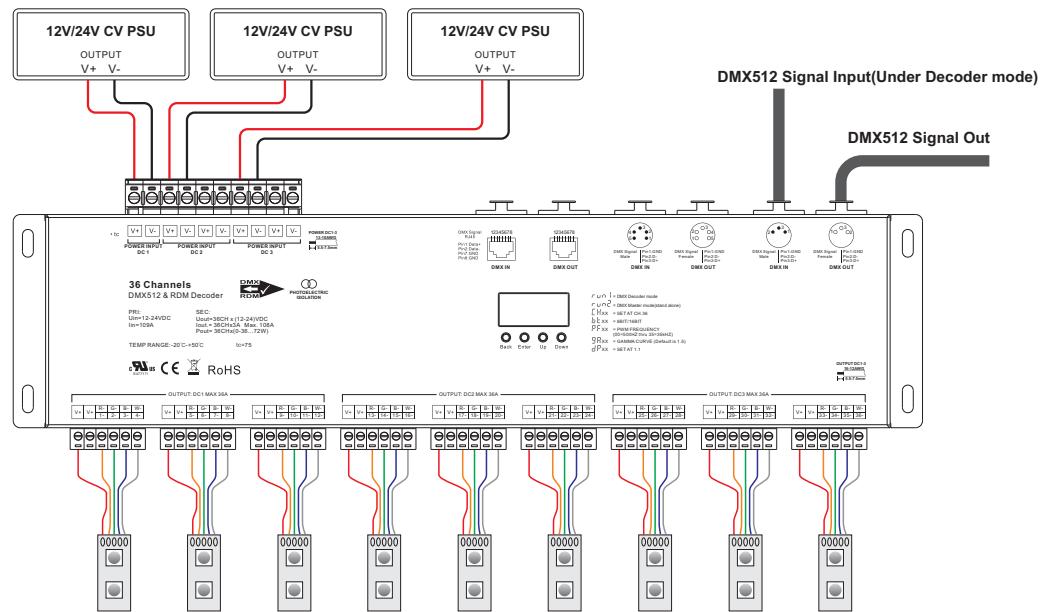
Gammie, ga T.  
Decoding Mo

Speed: 3804

## Wiring diagram



2)Connect with three power supplies



## Dimension

