

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.

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 **ARP**. 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 **ARP**, which means firmware updated successfully.

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

select menu **8 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 CH12, 12 channels):

select menu **88 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 DMX address for all the output channels, which are all address 001.

CH04=4 DMX addresses, output 1, 5, 9 will be address 001, output 2, 6, 10 will be address 002, output 3, 7, 11 will be address 003, output 4, 8, 12 will be address 004.

CH06=6 DMX addresses, output 1, 7 will be address 001, output 2, 8 will be address 002, output 3, 9 will be address 003, output 4, 10 will be address 004, output 5, 11 will be address 005, output 6, 12 will be address 006.

CH12=12 DMX addresses, output 1-12 is address 001-012 respectively.

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

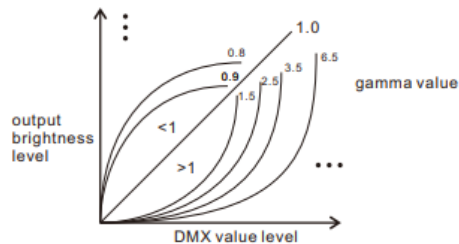
select menu **88 XX**, click button "Enter", display flashes, then click button "Up" / "Down" to choose 08 or 16 bit, then click button "Back" to confirm.

5. output PWM frequency setting (Factory default is PF10, 10kHz):

select menu **88 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 **98 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 (Factory default is dP1.1):

Select menu **88 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, CH01

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

DMX address is 001, CH04

DMX Console Slider number	dp1.3
DMX channel	
1	output 1&5&9 dimming
2	output 2&6&10 dimming
3	output 3&7&11 dimming
4	output 4&8&12 dimming

DMX address is 001, CH06

DMX Console Slider number	dp1.1	dp2.1	dp3.2	dp4.3	dp5.3	dp7.6	dp8.6
DMX channel							
1	output 1&7 dimming	output 1&7 dimming	output 1&7, 2&8 master dimming	output 1&7, 2&8, 3&9 master dimming	output 1&7, 2&8, 3&9 master dimming	all outputs master dimming	all outputs master dimming
2	output 2&8 dimming	output 1&7 fine dimming	output 1&7 dimming	output 1&7 dimming	output 1&7 dimming	output 1&7 dimming	output 1&7 dimming
3	output 3&9 dimming	output 2&8 dimming	output 2&8 dimming	output 2&8 dimming	output 2&8 dimming	output 2&8 dimming	output 2&8 dimming
4	output 4&10 dimming	output 2&8 fine dimming	output 3&9, 4&10 master dimming	output 3&9 dimming	output 3&9 dimming	output 3&9 dimming	output 3&9 dimming
5	output 5&11 dimming	output 3&9 dimming	output 3&9 dimming	output 4&10, 5&11, 6&12 master dimming	output 1&7, 2&8, 3&9 strobe effects	output 4&10 dimming	output 4&10 dimming
6	output 6&12 dimming	output 3&9 fine dimming	output 4&10 dimming	output 4&10 dimming	output 4&10, 5&11, 6&12 master dimming	output 5&11 dimming	output 5&11 dimming
7		output 4&10 dimming	output 5&11, 6&12 master dimming	output 5&11 dimming	output 4&10 dimming	output 6&12 dimming	output 6&12 dimming
8		output 4&10 fine dimming	output 5&11 dimming	output 6&12 dimming	output 5&11 dimming		all outputs strobe effects
9		output 5&11 dimming	output 6&12 dimming		output 6&12 dimming		
10		output 5&11 fine dimming			output 4&10, 5&11, 6&12 strobe effects		
11		output 6&12 dimming					
12		output 6&12 fine dimming					

DMX address is 001, CH12

DMX Console Slider number	dp1.1	dp2.1	dp3.2	dp3.4	dp4.3	dp5.3	dp5.4	dp6.4	dp8.6	dp9.6
DMX 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 dimming	output 2 dimming	output 2 dimming	output 2&4 dimming	output 2 dimming	output 2 dimming	output 2 dimming	output 2 dimming	output 2 dimming	output 2 dimming

DMX Console Slider number DMX channel	dp1.1	dp2.1	dp3.2	dp3.4	dp4.3	dp5.3	dp5.4	dp6.4	dp8.6	dp9.6
4	output 4 dimming	output 2 fine dimming	output 3&4 dimming	output 5&6 &7&8 dimming	output 3 dimming	output 3 dimming	output 3 dimming	output 3 dimming	output 3 dimming	output 3 dimming
5	output 5 dimming	output 3 dimming	output 3 dimming	output 5&7 dimming	output 4&5 &6 dimming	output 1&2 &3 strobe effects	output 4 dimming	output 4 dimming	output 4 dimming	output 4 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 dimming	output 5 dimming	output 6 dimming	output 10 &12 dimming	output 7&8 &9 dimming	output 6 dimming	output 7 dimming	output 6 dimming	output 7&8&9 &10 dimming	output 1&2&3&4 &5&6 strobe effects
10	output 10 dimming	output 5 fine dimming	output 7&8 dimming		output 7 dimming	output 4&5 &6 strobe effects	output 8 dimming	output 7 dimming	output 7 dimming	output 7&8&9 &10 dimming
11	output 11 dimming	output 6 dimming	output 7 dimming		output 8 dimming	output 7&8 &9 dimming	output 9&10&11 &12 dimming	output 8 dimming	output 8 dimming	output 7 dimming
12	output 12 dimming	output 6 fine dimming	output 8 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 7 dimming	output 9&10 dimming		output 10&11 &12 dimming	output 8 dimming	output 10 dimming	output 9&10 &11&12 dimming	output 10 dimming	output 9 dimming
14		output 7 fine dimming	output 9 dimming		output 10 dimming	output 9 dimming	output 11 dimming	output 9 dimming	for output 11 &12 dimming	output 10 dimming
15		output 8 dimming	output 10 dimming		output 11 dimming	output 7&8&9 strobe effects	output 12 dimming	output 10 dimming	for output 11 dimming	output 11&12 dimming
16		output 8 fine dimming	output 11&12 dimming		output 12 dimming	output 10&11& 12 dimming		output 11 dimming	for output 12 dimming	output 11 dimming
17		output 9 dimming	output 11 dimming			output 10 dimming		output 12 dimming		output 12 dimming
18		output 9 fine dimming	output 12 dimming			output 11 dimming		output 9&10&11 &12 strobe effects		output 7&8&9&10 &11&12 strobe effects
19		output 10 dimming				output 12 dimming				
20		output 10 fine dimming				output 10&11&12 strobe effects				
21		output 11 dimming								
22		output 11 fine dimming								
23		output 12 dimming								
24		output 12 fine dimming								

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.

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.

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
MANUFACTURER_LABEL
SUPPORTED_PARAMETERS
MODULATION_FREQUENCY
MODULATION_FREQUENCY_DESCRIPTION
CURVE
CURVE_DESCRIPTION
```

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: ch12, SW1=1: ch01

PWM Resolution Mode: bt16

PWM Frequency: pf10

Gamma: ga1.5

Decoding Mode: dp1.1