COEX

Art-Net Protocol

Instructions

Contents

1 Applicable Products

Product Type	Model	Version
LED display controller	Single- card controllers: MX40 Pro, MX30, MX20, KU20, CX40 Pro Card-based controllers: MX6000 Pro, MX2000 Pro	V1.5.0
Software	VMP	V1.5.0

2 Service Description

2.1 About Art-Net

To use the Art-Net protocol, you need both a transmitter (such as a console or control PC) and a receiver (like a lighting system or LED display control system). For Art-Net to function correctly, both the transmitter and receiver must be on the same local area network (LAN).

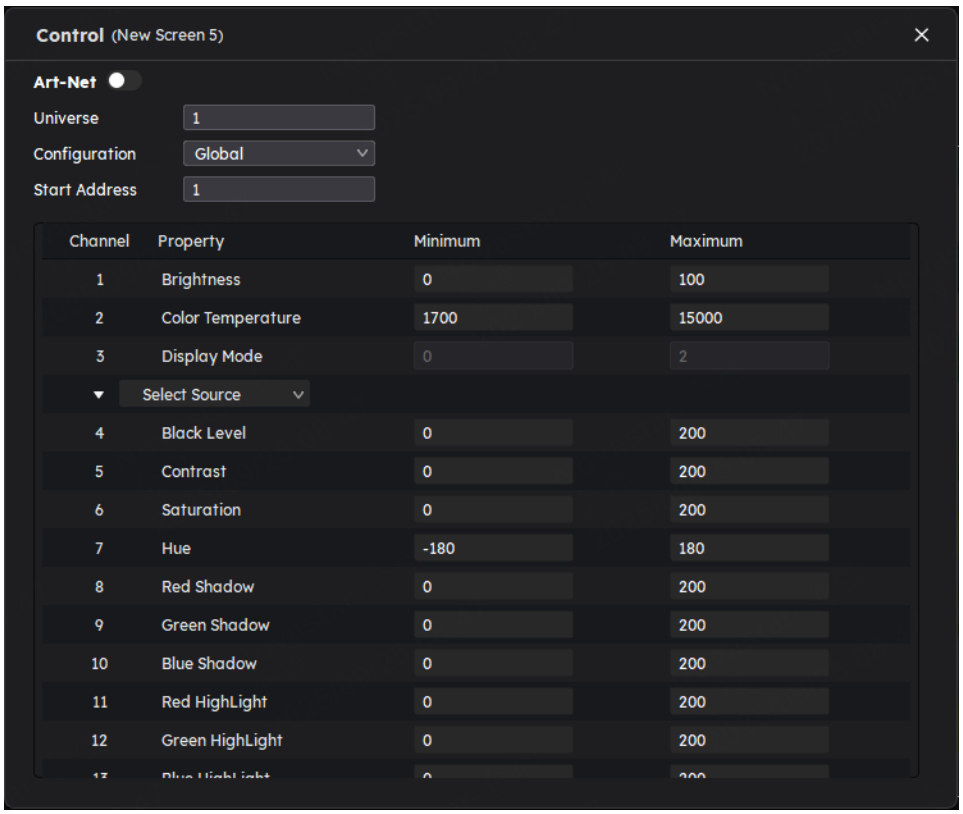
When the sender transmits Art-Net data to the specified receiver (based on IP addressing), the message includes the controlled universe number, controlled channel number, and the value. **Currently, the control software used on the PC is DMXworkshop**.

The receiver needs to configure the universe number it belongs to, the channel number, the configurable parameter range, and the parameter type corresponding to the channel.

For example, the Art-Net control PC sends universe 1, channel 1, value 255 to the LED display controller, and when the LED display controller receives the data, it can map the parameter to a function to achieve the adjustment of that function.

2.2 Receiver Configuration

After selecting a device from the device list on the left side of VMP, click Tools > Control in the menu bar and the following page will appear:



- Switch: Click on the Art-Net switch to adjust the Art-Net switch status of the controller.
- Universe: Each controller must be assigned a universe number, with only one universe number allowed per controller. When using card-based controllers, if the same controller outputs to different screens, the universe number remains consistent. All controllers on the same screen share the same universe number. The range for universe numbers is 1-32767.
- Configuration: Each controller supports multiple channels. Available channel range is: 1-512. A total of 4 sets of configurations are available for the controller: **Global**, **Source**, **Image Quality**, **Preset**. The 4 configurations can be switched in the drop-down box of the configuration. Each set of configuration defines the parameters that can be set for each channel. After selecting the relevant configuration, the above page will present the corresponding configuration of the channel configuration
- Start Address: Set the start address for the controller. Controllers with the same start address will share the same control parameters. The range for the start address varies for each controller, as detailed below:

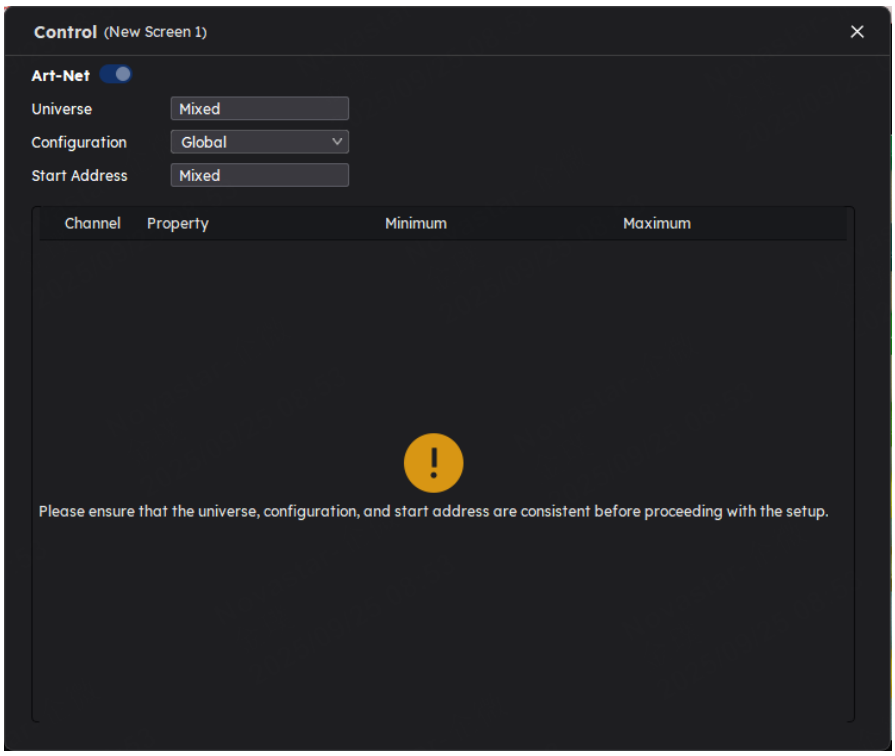
Settings	Start Address Range	Default Start Address
Global	MX6000 Pro: 1 to 190 MX2000 Pro: 1 to 430 MX40 Pro: 1 to 460 MX30: 1 to 460 MX20: 1 to 480 KU20: 1 to 500 CX40 Pro: 1 to 460	1

Input Source	MX6000 Pro: 1 to 193 MX2000 Pro: 1 to 433 MX40 Pro: 1 to 463 MX30: 1 to 463 MX20: 1 to 483 KU20: 1 to 503 CX40 Pro: 1 to 463	1
Image Quality	1 to 510	1
Preset	1 to 512	

- Select Source: When the configuration is switched to **Global** or **Source**, the input source type of the input source channel needs to be designated. For example, channels 1-10 correspond to parameters such as black level and contrast of the input source, respectively, but the channel needs to be specified as HDMI or DP, etc. Therefore, the specific source that can be specified depends on the current input source type of the controller.
- Changing maximum and minimum values: Except for the display mode channel in the Global configuration and the preset switching channel in the Preset configuration, the maximum and minimum values of all other channels can be set, and the range is: -32768 to 32767. When a value that exceeds this range is entered, the extreme value will be displayed.

  Maximum and minimum values represent the range of parameters mapped to the data range (0-255) for one channel of the control PC.

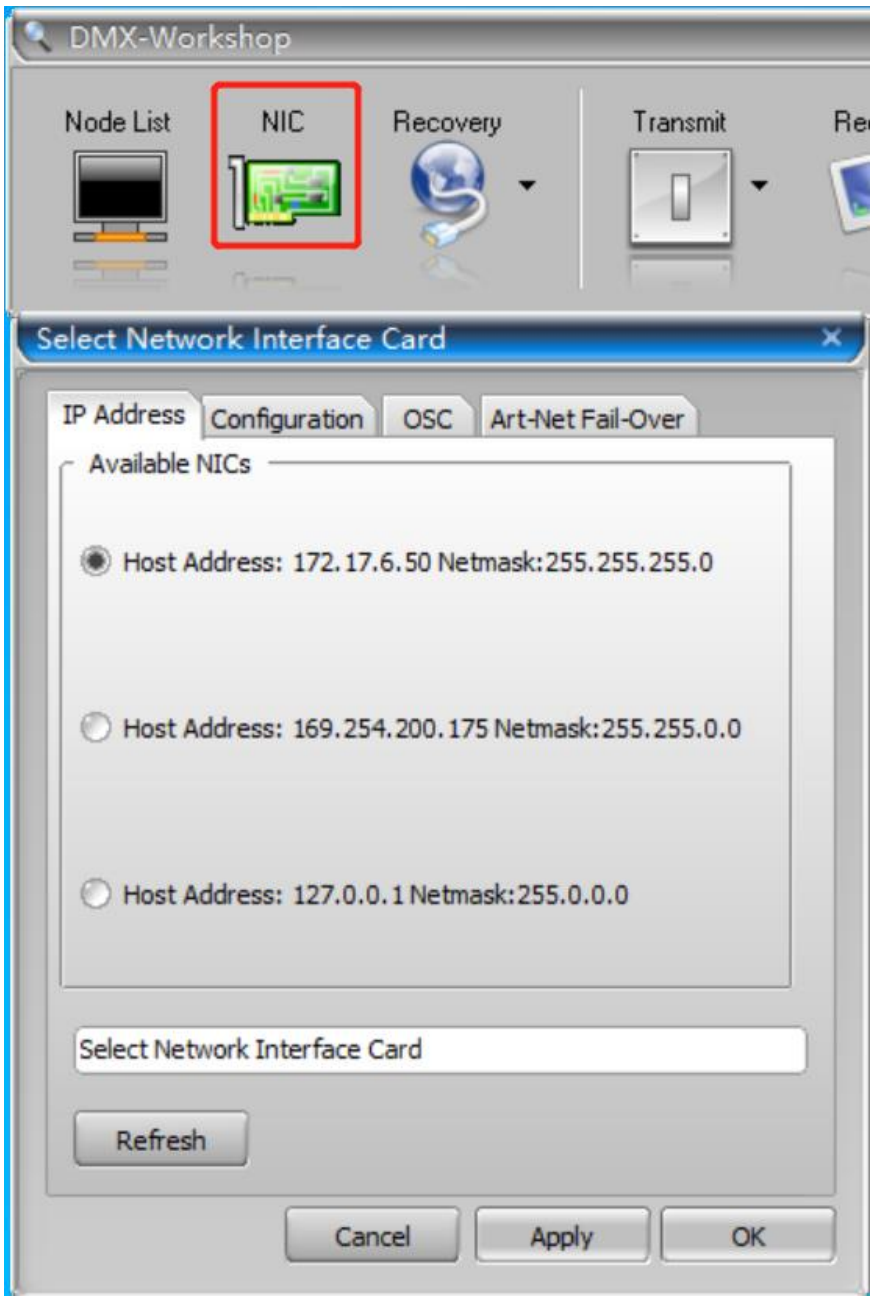
  For example: For the Global configuration, if the minimum and maximum values of the channel 1 brightness are set to 0 and 100, respectively, the data “0” transmitted from the control PC software will be mapped to 0% brightness, and “100” will be mapped to 100% brightness, that is, (0-255) is mapped to (0-100). If the minimum and maximum values are set to 0 and 255, respectively, the data “0” transmitted from the control PC software will be mapped to 0% brightness, “100” will be mapped to 100% brightness, and the mapping for transmitted values over 100 will be invalid, that is, (0-255) is mapped to (0-255).
- When multiple controllers are of the same screen and have differing settings that cause a **Mixed** state, please standardize the universe, configuration, and start address before making adjustments. (The default universe number is 1. The default values of each channel in Global configuration are shown in the table below. The display mode and preset do not support the adjustment of the channel range).



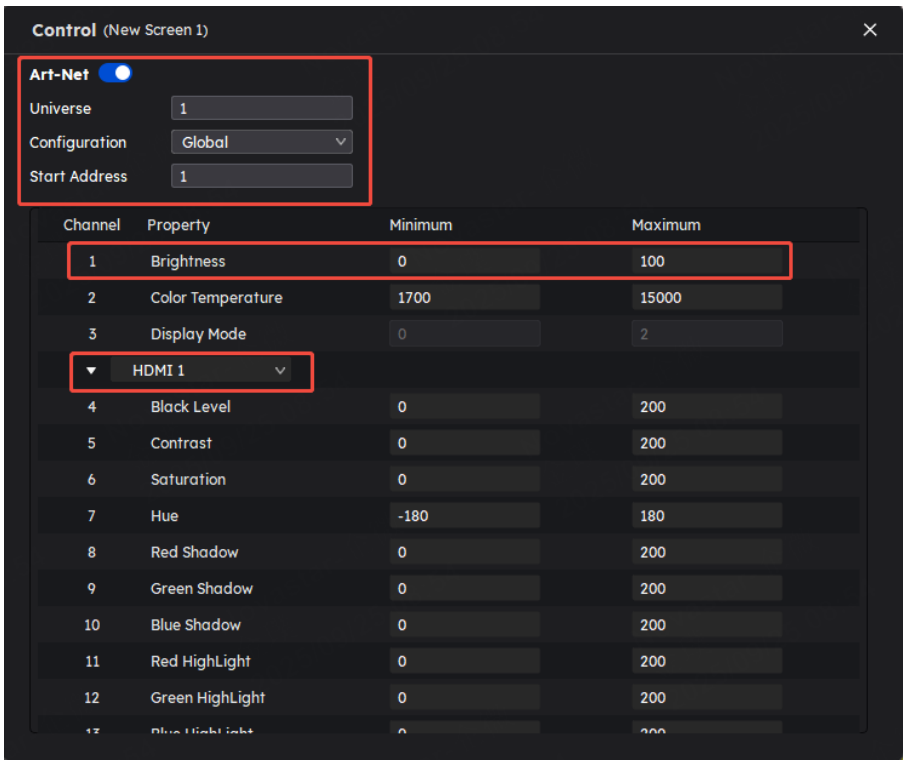
Brightness	0	100
Color Temperature	1700	15000
Display Mode	0	2
Black Level	0	200
Contrast	0	200
Saturation	0	200
Hue	-180	180
Red Shadow	0	200
Green Shadow	0	200
Blue Shadow	0	200
Red Highlight	0	200
Green Highlight	0	200
Blue Highlight	0	200
Preset	1	128

3 Operating Procedure

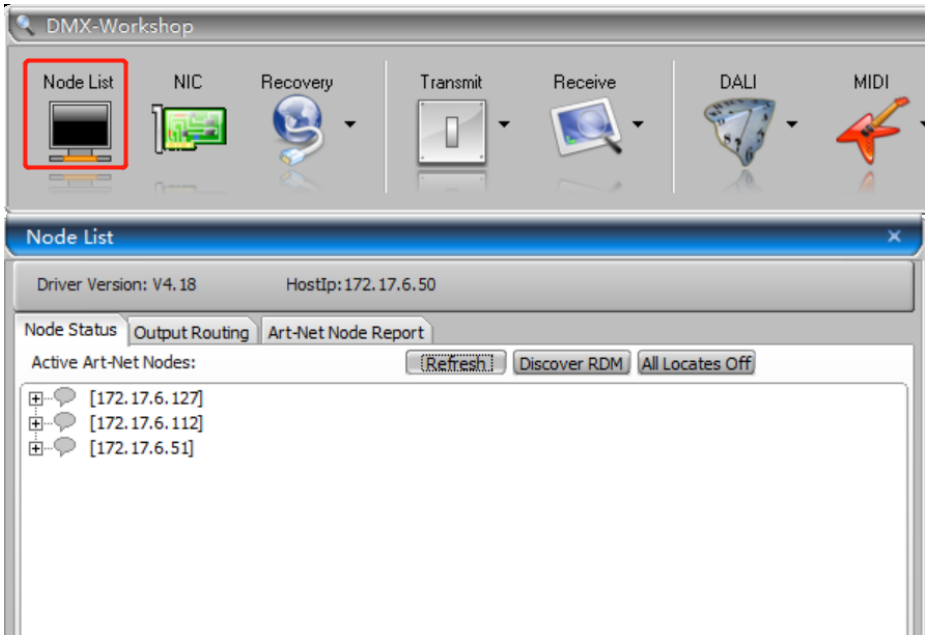
- The control PC software is DMXworkshop. Connect the control PC and the controller to the same LAN and set them to be on the same network segment. Then, open DMXworkshop software. From the NIC drop-down box, select the IP Address that are on the same LAN as the controller.



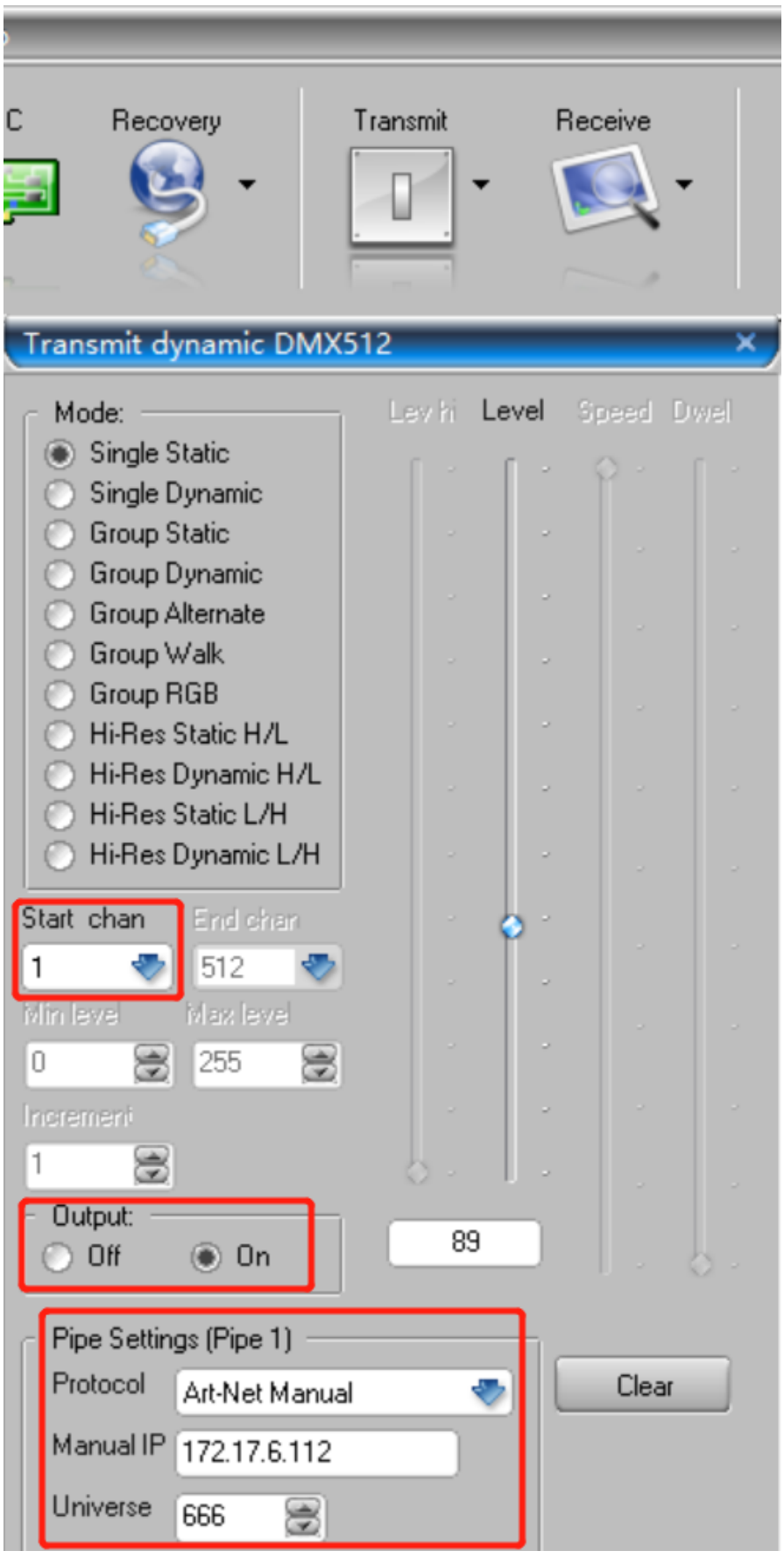
- After selecting the device in the device list on the left side of VMP, click Tools > Control in the menu bar, turn on the Art-Net function, configure the universe value to 666, and configure other parameters (optional).



- In DMX software, click **Node**, and click Refresh to see if the selected controller device has been discovered.

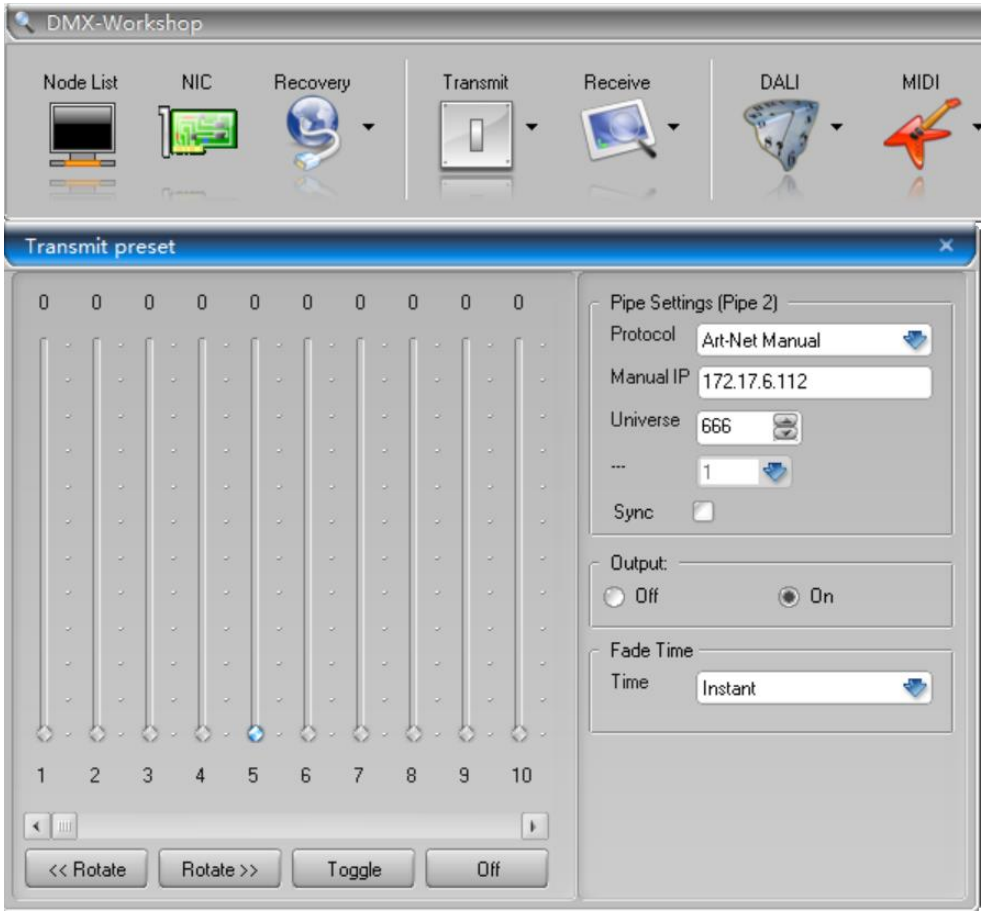


- If a controller has been found, click **Transmit** > **Transmit dynamic DMX**. Select **On** for **Output** and **Single Static** for **Mode**. Set **Start Chan** to the channel to which the parameter you want to adjust belongs. Then, perform **Pipe Settings**: set **Protocol** to **Art-Net Manual**, fill in the **Manual IP** field with the selected controller IP, and set **Universe** to be the same as the controller Universe (the universe number range of the software only supports 1 to 32767). Last, adjust the **Level** slider to see if the corresponding parameter of the controller follows the value of the slider.



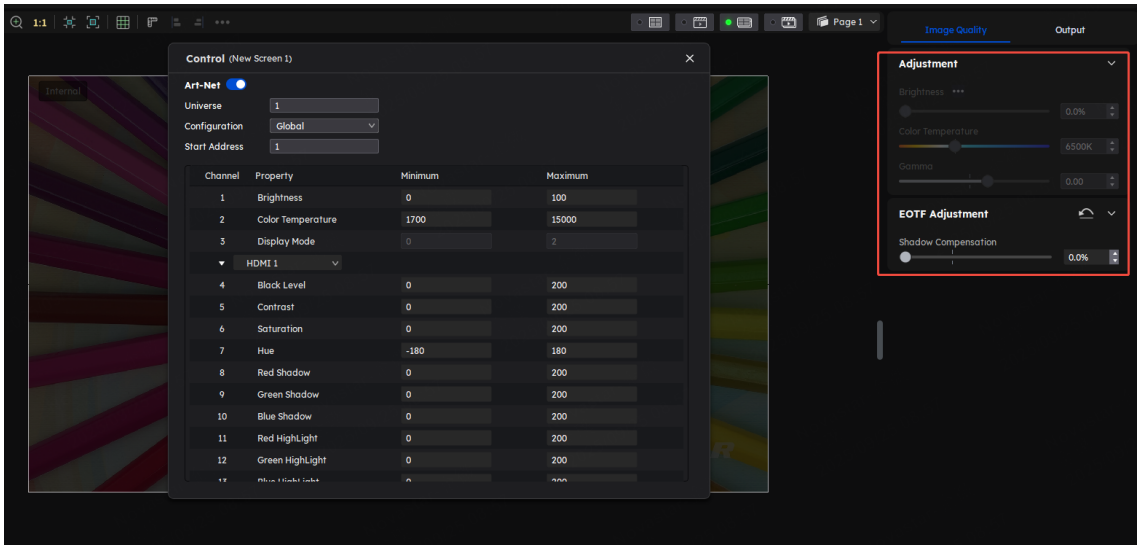
- Or click **Transmit-Transmit preset,** and select **On** for **Output**. Then, perform **Pipe Settings**: set **Protocol** to **Art-Net** Manual, fill in the **Manual IP** field with the selected controller IP, and set **Universe** to be the same as the controller Universe (the universe number range of the software only supports 1

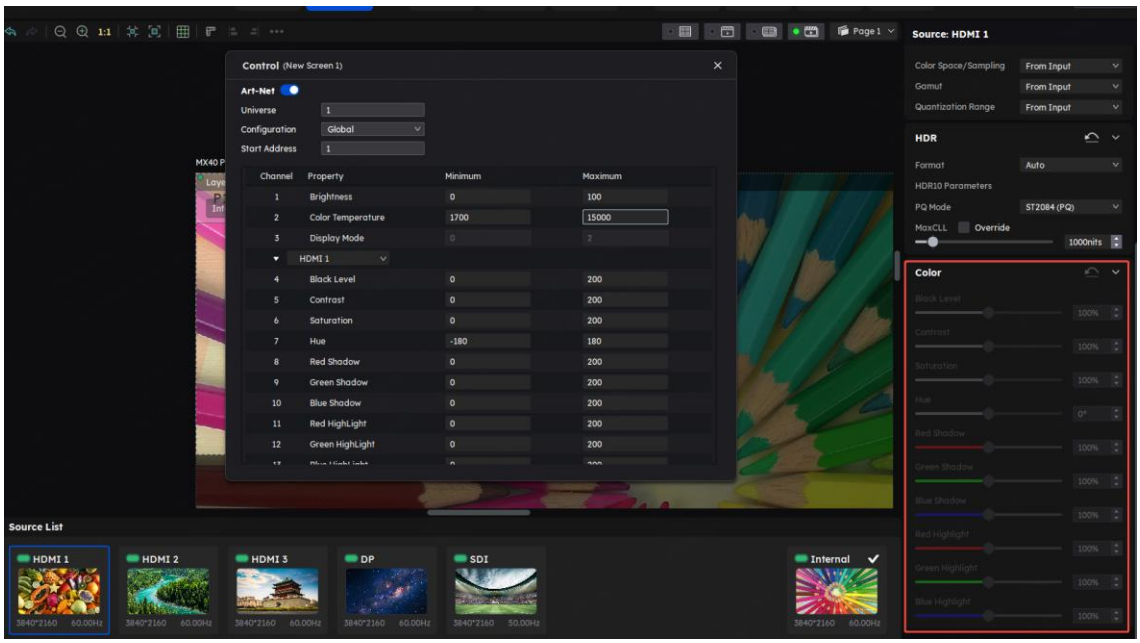
to 32767). Last, adjust the slider corresponding to the channel number to see if the corresponding parameter of the controller follows the value of the slider.



Notes:

When using the control page for adjustment, if the value of the channel slider is not changed, the values of the functions corresponding to all valid channels will be set to the minimum value, as shown in the figures:




Control (New Screen 1)
Art-Net
Universe
Configuration
Global
Start Address
Channel
Property
Minimum
Maximum
Brightness
Color Temperature
Display Mode
HDMI 1
Black Level
Contrast
Saturation
Hue
Red Shadow
Green Shadow
Blue Shadow
Red HighLight
Green HighLight
Source: HDMI 1
Color Space/Sampling
Gamut
Quantization Range
From Input
HDR
Format
Auto
HDR10 Parameters
PQ Mode
ST2084 (PQ)
MaxCLL
Override
1000nits
Color
Source List
HDMI 1
HDMI 2
HDMI 3
DP
SDI
Internal

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