



X1 Controller

USER MANUAL

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Chapter 1 Overview

1.1 Overview

X1 is a professional LED display controller. It possesses powerful video signal receiving and processing capacities, and supports HD digital signals, in which the maximum input resolution is 1920×1200 pixels. It supports HD digital ports including HDMI and DVI, and seamless switching between signals. It supports arbitrary scaling and cropping of video sources.

X1 adopts 2 Gigabit Ethernet outputs, and it supports LED displays of 4096 pixels in maximum width or 2560 pixels in maximum height. Meanwhile, X1 is equipped with a series of versatile functions which can provide flexible screen control and high-quality image displays. It can be perfectly applied to small LED displays.

1.2 Features

• Performance

Supports arbitrary switching, scaling and cropping of video sources

Supports screen offset

Supports improved gray-scale performance at low brightness

Supports brightness and chromaticity adjustments

• Input

Supports 2 kinds of video input ports, including 1×HDMI and 2×DVI Supports input resolutions up to 1920×1200@60Hz

Supports HDCP 1.4

Output

Loading capacity: 1.31 million pixels, maximum width: 4096 pixels, maximum height: 2560 pixels

• Control

Dual USB 2.0 for high speed configuration and easy cascading among controllers

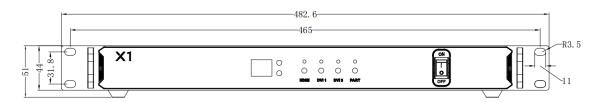


1.3 Structure

• Dimensions: 1U standard box

The following figure shows the dimensions of the X1 for reference:

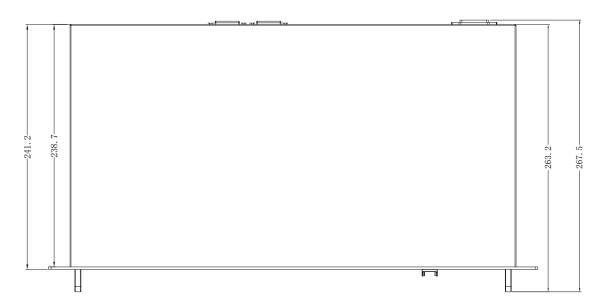
Main view (unit: mm)



Rear view (unit: mm)



Top view (unit: mm)





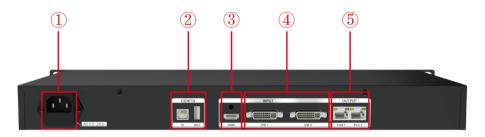
• The Front Panel



1	<u>Digital tube</u> Displays current brightness value The up and down buttons are used to adjust the brightness value, the adjustment range is 0-16.
2	Button
HDMI	HDMI button Switch the picture signal to HDMI signal, the button light is always on after selecting the signal.
DVI1	DVI1 button Switch the picture signal to DVI1 signal, the button light is always on after selecting the signal.
DVI2	DVI2 button Switch the picture signal to DVI2 signal, the button light is always on after selecting the signal.
PART	PART button Turn on/off the cropping function.
3	Power button Switch the X1 on/off



• The Back Panel: Interface type and specifications



Input Interface							
3	HDMI HDMI 1.4 standard, receives HDMI signal format image from devices such as computer or HD player, maximum supports 1920×1200@60Hz						
4	DVI1/2 Receives DVI signal format image from devices such as computer or HD player, maximum supports 1920×1200@60Hz						
Output	Interface						
5	<u>Gigabit Ethernet</u> 2 RJ45 Gigabit Ethernet outputs, which connect with the LED display.						
Control	ling Interface						
2	 IN USB input, which connects with PC to configure parameters. OUT USB output, cascading with the next controller. 						
Power							
1	Power interface AC 100~240V, 50/60 Hz, maximum power: 8W, IEC-3 power interface.						
Other Specifications							
<u>Working temperature</u> : -40°C~70°C <u>Anti-static design, low EMI radiation</u>							



Chapter 2 Functions

2.1 Video Processing

• Scaling, cropping

Supports scaling and cropping; maximum width is 4096 pixels, maximum height is 2560 pixels.

• Better gray

2.2 Sending

- 2 Gigabit Ethernet outputs, single network port loads up to 655360 pixels.
- 16 sets of preset parameters, supports renaming, saving and loading.
- Supports brightness and chromaticity adjustments.
- Supports auto brightness adjustment in conjunction with multifunction cards.
- Supports loop backup of the primary and secondary network ports to ensure that the LED screen is displayed by the backup network cable after the main network cable is disconnected.
- Connection relationship between receiving cards is supported to save in the sender, and it is sent by the sender in real time; each network port supports the connection diagram storage of 100 receiving cards.
- Supports brightness calibration, chromaticity calibration, and soft edge.
- Supports self-generated test images: Vertical Moving Line, Horizontal Moving Line, Right Slash Move Down, Left Slash Move Down, Grid Move Down, Red, Green, Blue, White, Black, Gradient Red, Gradient Green, Gradient Blue, Gradient White.



Chapter 3 Operations

3.1 Signal Connection





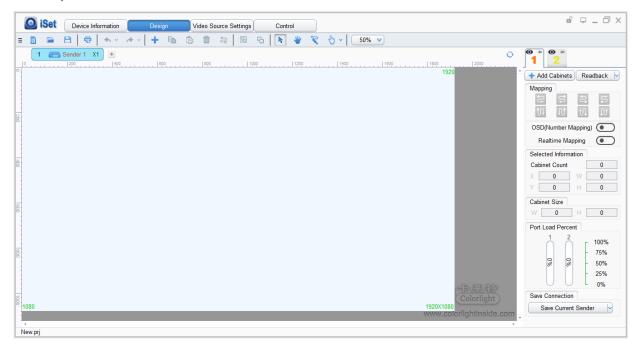
3.2 Power On

Press the power button on the front panel of the X1, it will be turned on and enter the self-test status, all the button lights will light up in sequence until booting successfully. The device will display the last saved settings, the new device will display the factory default settings.

3.3 Software Control

Official website: http://www.colorlightinside.com.

Download the iSet software at "Support-Download-Software Download". Run the iSet software, the main interface is showed as follows.



3.3.1 Device Information

• Detect senders

Connect the PC to device with USB cable or network cable, turn on the device.

Click "Detect Senders", acquire the device information.



USB control and detect device information

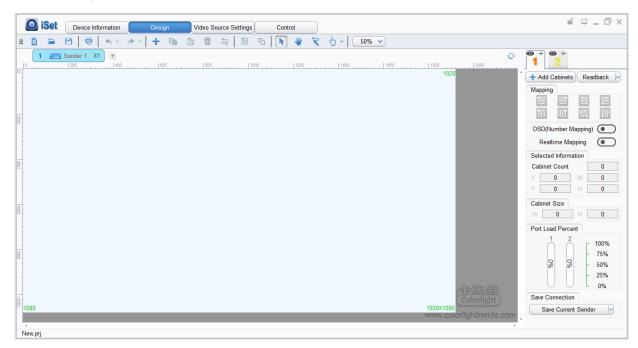


• Detect receiver cards

Click "Detect Receiver Cards", acquire the receiver cards information.

Detect Senders	Index	Name	Туре	Port 1	Port 2			
	1	Sender 1		🥥 4	0			
etect Receiver Cards								
	1							
ailed Cable Only	Port	Index	Туре	Tempe	erature	Cable	Working Time	
t Filtration	1	1	i9 1.28	26	°C	OK	16:23:51	
All Port	1	2	i9 1.28	27	°C	OK	16:23:51	
2	1	3	i9 1.28	26	°C	OK	16:23:50	
	1	4	i9 1.28	26	°C	OK	16:23:50	

3.3.2 Design



On this page, the function of sender can be set as followed:

• Send/Read back the mapping of receiver



• * <u>2</u>		Cabinet	Size X
🕂 Add Cabinets Readback 🖂			
Custom (128 X 128)	$\square \rangle$	Width 128 💲	Height 128 🌲
Custom		ОК	Cancel
Type Management			

Choose the sender net ports that need cabinets to be added. Click "Add Cabinets" -"Custom", add cabinets according to the actual size of the cabinets. After adding certain amount of cabinets, set up the mapping according to the connection of real situation.

	Save Connection
Click the button "	save Current Sender is to save the mapping.
	+ Add Cabinets Readback
Click the button "	Readback from Current Sender " to read back the mapping.

• Port backup and sender backup

0	+ •
1920	Import Mapping by Port
	Export Mapping by Port
Port 1	Port Backup
	🖈 Cabinet Lock 🔹 🕨
0	Cabinet Parameters
	Cabinet Information
	<u>ب</u>
Cancel 6	Backup
Source Port	
Source Port	1
Save Curre	nt Sender

Right click the output port which you want to set as backup: Port Backup of the main port. For example, set the port 2 as the backup of port 1.



www.colorlightinside.com

-		· ·	·
	1 📻 Sender 1 2 📻 Sender		
	0	Import Mapping by Sender	1200
•		Import Mapping from other Sender •	
		Export Mapping by Sender	
	-	i Delete	
200	-	Rename	
		Mapping From Sender	
		Restore Factory Settings	
400		Port Area	
		Sender Backup	Sender 1(Sender 1)
		Cabinet Parameters	
600		Cabinet Information	
0	1 — Sender 1 □2 — Sender 2 X1 × + 1		2000 1 2
-		1920	Cancel Backup
-			Source Sender: 1
200			Save All Senders

Right click the sender which you want to set as backup. For example, set the sender 2 as the backup of sender 1.

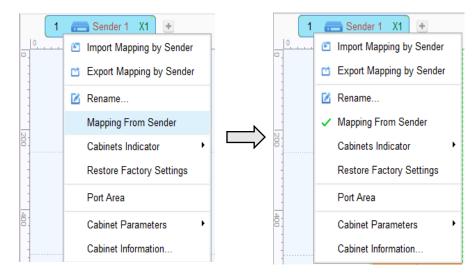
• Rename

1	Content And Conten	
	Restore Factory Settings	
	Ţ	
	Rename	×

Right-click the sender that needs to be renamed, choose "Rename" on the menu, and directly input the name of the sender into the popped-up window (limited to 50 English characters).



• Mapping from sender



Choose "Mapping From Sender", the mapping of cabinets will apply the mapping stored in the sender.

• Restore factory settings



Choose the sender which needs to restore factory settings, select "Yes" on the popped-up window.





3.3.3 Video Source Setting

0					n 🖵 .	_ 🗇 >
	😑 🖻 📘 💘 🛛 41% 🗸					
	1 👝 Sender 1 X1		HDMI	DVI1 DVI2		
0 		^	Input	Video Format	Cropping	EDID
			HDMI	1920x1080@60Hz	Ъ.	•••
			DVI1	No Signal	頃.	• • •
			DVI2	No Signal	頃.	•••
		ſ	Main			
			x		eep Aspect Ratio	
			Y	0 Height 1080	1:1	
	ном	11		Save Preset	Recall Pr	reset
10						
	2,073,000					
		~				
< lew.	ri and a second s	•				

On this page you can setup the followed function:

• Main input display setting

Input	Video Format	Cropping	EDID						
HDMI	1920x1080@59.94Hz	1 <u>0</u> ,							
DVI1	No Signal	13.							
DVI2	No Signal	頃.							
Main									
X	0 💠 Width 1920 🖨 🗌 K	eep Aspect Ratio							
Y	0 🜲 Height 1080 🌲	1:1							

Choose video source - modify the start position of X, Y, width, height.

Two operations: input values on the interface; drag the position and the size of the signal window in the view area.



• Cropping and EDID setting

	(HDMI	DVI1 DVI2				
		Input	Video Format	Сгор	ping	EDID	
		HDMI	1920x1080@59.94Hz	٦.		•••	1
		DVI1	No Signal	1 0 ,			
		DVI2	No Signal	Ъ.			
							_
	_		ндмі				
0	0		[500]1000]1500 [1022]	2000	Corpping Cropping Info		
						0 \$ W 0 \$ H	1920 ‡ 1080 ‡
						•	
500			HDMI				
1000							
1500							
1	<			>			

Select signal source of the image that needs to be cropped, click the cropping icon to enter the cropping interface. In the cropping interface, check "Crop", and set X, Y, width and height in "Cropping Information", then the cropping setting is auto saved.

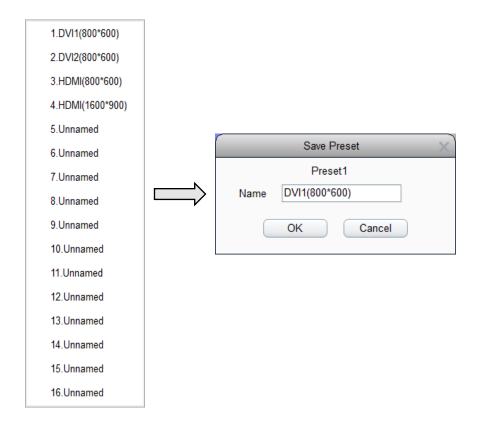
				HDMI - EDID Setting	
IDMI	DVI1 DVI2			Custom	
Input	Video Format	Cropping	EDID	800 X 600	
HDMI	1920x1080@59. 94Hz	(1.)	•••	1024 X 768	
DVI1	No Signal	13.	•••	1280 X 1024	
DVI2	No Signal	13.	• • •	1600 X 900	
				🗸 1920 X 1080	
				1920 X 1200	

As shown in the figure, click the EDID setting icon after the corresponding signal, the EDID setting window will pop up. Click the drop-down list to select the mainstream resolution, or customize the resolution.





• Save and recall preset



Click "Save Preset", select one of preset serial number, modify the saved name of preset, finally click "OK" and finish the setting.

Recall F	Preset	p Aspect Ratio	
1.DVI1(800*600)	2.DVI2(800*600)	1:1	
3.HDMI(800*600)	4.HDMI(1600*900)	Recall Preset	

Click "Recall Preset", and select the corresponding preset.





3.3.4 Control

ISet Device Information Desi	gn Video Source Settings Control	
Image: Control of the second		1990 2000 2000 All Sender Selection All Senders 25% 50% 75% 100% ■ Better Gray Color Adjust by Color Temperature 6500 10000 Default Test Patterns Screen
		Freeze Black Black

This interface can set the function as followed:

• Brightness adjustment of senders

Brightnes	s		
25%	50%	75%	100% 🖌
_			56% 🌲
Better	Gray		

It supports setting the sender's brightness value and setting "Better Gray" of the sender. We can turn "Better Gray" on to optimize the displaying results of the screen under low brightness.

• Color temperature adjustment

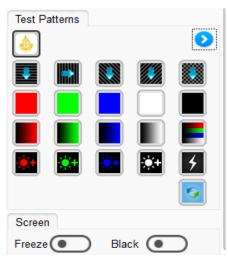
Color	Color
Adjust by Color Temperature	Adjust by Color Temperature
255 ‡ 255 ‡ 255 ‡	

When unchecking the "Adjust by Color Temperature" option, adjust R, G, and B values separately; when checking "Adjust by Color Temperature", drag the slider to adjust the color temperature value.





• Test Patterns, Black, Freeze



The users can set different test patterns based on their needs. Click on a certain test pattern icon, the sender will show the corresponding test result. We can view the display of the screen through "Test Patterns", and to detect and diagnose the screen.

The X1 supports "Freeze" and "Black". Click on "Freeze", the picture on the screen will freeze; Click on "Black", the screen will become black and display nothing.



Visual Future

Colorlight US, Inc. www.colorlightinside.com