




## LED Control Card

### User Manual

 Before you use the LED controller, please read this file first and save it for future.

**We will struggle and serve for the booming development of LED industry!**

**BX-V receiving card**

## Statement

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## Brief Introduction

Thanks for choosing LED control card. The design of the control card is according to the international and industrial standard, but if the operations are incorrect, it will probably bring you personal injury and financial harm. As to avoid these and win more from your equipment, please obey the specifications of this file.

### About Software

Cannot do any modification, decompilation, disassembling, decoding or reverse engineering on our software, it' s illegal.

### Characteristics

- ◆ Simple construct; Convenient to install;
- ◆ Gigabit receiving card mode, be compatible with synchronous sending card and asynchronous YQ player;
- ◆ High refreshment; Abundant display effect; Support high refreshment and high gray scale;
- ◆ Simple operations;
- ◆ Support the normal chip, PWM chip, etc.
- ◆ Support any scan mode in 32 scan, and support 595 serial decoding scan;
- ◆ 16 or 20 nos RGB display, specified firmware support single/dual color HUB;
- ◆ Support "configure file" read back;
- ◆ Support detect on Ethernet communication;
- ◆ Can be used for all kinds of full color LED screens

## Guiding

### **Safety Note**

- ◆ Input voltage is 5V, voltage range is from 4.5V-5.5V, please make sure the quality of the power supply of BX-V series.
- ◆ Please make sure that all the power supply cables are plugged off when you want to connect or plug off any signal or controlling cables.
- ◆ Please make sure that all the power supply cables and signal cables are plugged off when you need to put in or take off the hardware equipment.
- ◆ Please take off the power supply of LED video processor before you do any hardware operations, and ESD by touching the ground.
- ◆ Please make sure the environment is clean, dry and ventilated when you use this product, also, do not put this product to a high temperature and wet environment.
- ◆ This product is electronic products, please keep away from fire, water source and flammable&combustible products.
- ◆ There' s high pressure components in this products, please do not open the box and repair it by yourself.
- ◆ Turn off the power supply immediately when you find smoking, peculiar smell or something unusual. And contact with us soon.

## Function Introduction

BX-V receiving cards used for all kinds of full color LED display screen, support most of the module chip. 2 nos 50pin interface, 16 nos RGB data, refresh rate can be reached to 5000Hz. Support Gigabit mode, asynchronous player and BX-VS/VSE/VHE synchronous sending card. Users can update the firmware online.

### **Simple install**

Adopt the standard interface, standard hole specifications. Support connecting indicator light and test button from outside; 2 gigabit Ethernet ports; Support exchange of input and output.

### **Interface**

2nos 50pin port on board, support E signal, maximum 32 scan mode, 16 nos or 20 nos RGB signal outputs. Support exchange the data from any interface, RGB colors will exchange in orders.

### **Split mode**

Support 2 split modes, 3 split modes and 4 split modes, for width, can be different. Example: 2 split modes: first one is 128 pixels, another one is 64 pixels; 3 split modes: first one is 128 pixels, middle one is 128 pixels, last one is 64 pixels.

### **Data direction can be changed**

Default is from right to left. According to your requirements, you can set as "left to right" " top to bottom" " bottom to top" .

### **Support special-shaped screens**

Support excursion of display data ( from range 0-511 pixels). And maximum, you can set 384 in height for excursion.

### **Many scan modes**

Use LedshowTV software, and support 32, 16, 8, 4 scan modes; Support without 138, and support 595, RT958 etc. By smart scan function, can support static screen, 2 to 32 scan modes.

## **Compatible with many chips**

Support normal chip, PWM chip.

## **Better effects**

Adopt high refreshment technology, support high refreshment and high gray scale. Support 256, 512, 1024, 2048, 4096, 8192, 16384, 32768, 65536.

Used for all kinds of situations, outdoor or indoor. Users can get a good effect by adjusting the refresh rate, display mode, etc.

## **Clock adjustment**

Support adjustment from 10.42MHz to 31.25MHz. Satisfy cascade characteristics of different modules, has better effect. On the promise of refresh rate, will increase the width.

## **Blanking adjustment**

Adjust the blanking, as to adjust the virtual light.

## **Maintenance**

Receiving card supports read back function of configuration parameters; Support update online; It is convenient for customers to update and maintain.

## Control Size

Better to control the sized smaller than 256\*256, you will get a good effect.

The effect is depending on the width of the screen, as to be more clear, please check the below

scan mode	Suggest	Maximum	The lowest refresh rate
1/32	64	128	960
1/16	128	192	960
1/8	64	128	1440
1/4	64	128	1920

**Note:**

- ◆ The upon scan modes are for straight lines. If your scan mode is 1/4, one data has 8 lines, you should choose the data of 1/8; If your scan mode is 1/4, one data has 16 lines, you should choose 1/16.
- ◆ If it is OK, you can use split mode as to improve the display effect.



# Adjustment Guiding

## Choose Parameters

### ➤ Display mode

Now, we have two modes, refreshment priority and brightness priority. Refreshment priority is for high refresh rate, and you will get good feedback by mobile phone or camera, but the brightness is lower. If you use brightness priority, you will get higher brightness but photo by mobile phone or camera may not so good. Usually, for indoor screen, brightness is not so important, so you can choose refreshment priority; But for outdoor screen, brightness is needed, in this situation, need to choose brightness priority.

### ➤ Brightness mode

For brightness mode, there are 3 modes: lower, normal or high brightness. If the display mode is fixed, then, the higher the brightness is, the lower the refreshment will be. Or, on the same refreshment, the control width will be smaller. So, when the brightness is enough, you can choose lower brightness mode, as to obtain a better refresh rate and shooting effect.

### ➤ Gray grade

On the same refresh rate, if the control size is the same, then, the gray grade is higher, the effect will be better. But if the gray grade is higher, the control size will be smaller. So, we usually suggest to use 4096 gray scale, do not over than 16384.

### ➤ Refresh rate

It is not correct that the refresh magnification is higher, the effect will be better. If the refresh rate is enough, the refresh magnification is lower, the shoot effect will be better.

### ➤ Replacement clock

Replacement clock is also an important parameters. The higher the replacement clock is, the control size will be larger (on the same refresh rate). But some kinds of modules are not so good with quality, cannot use higher replacement clock, usually, there will be some special flashing on the screen.

### ➤ Gray from the first grade

If users need better low gray effect, you can choose. But the effect will be not so good, it

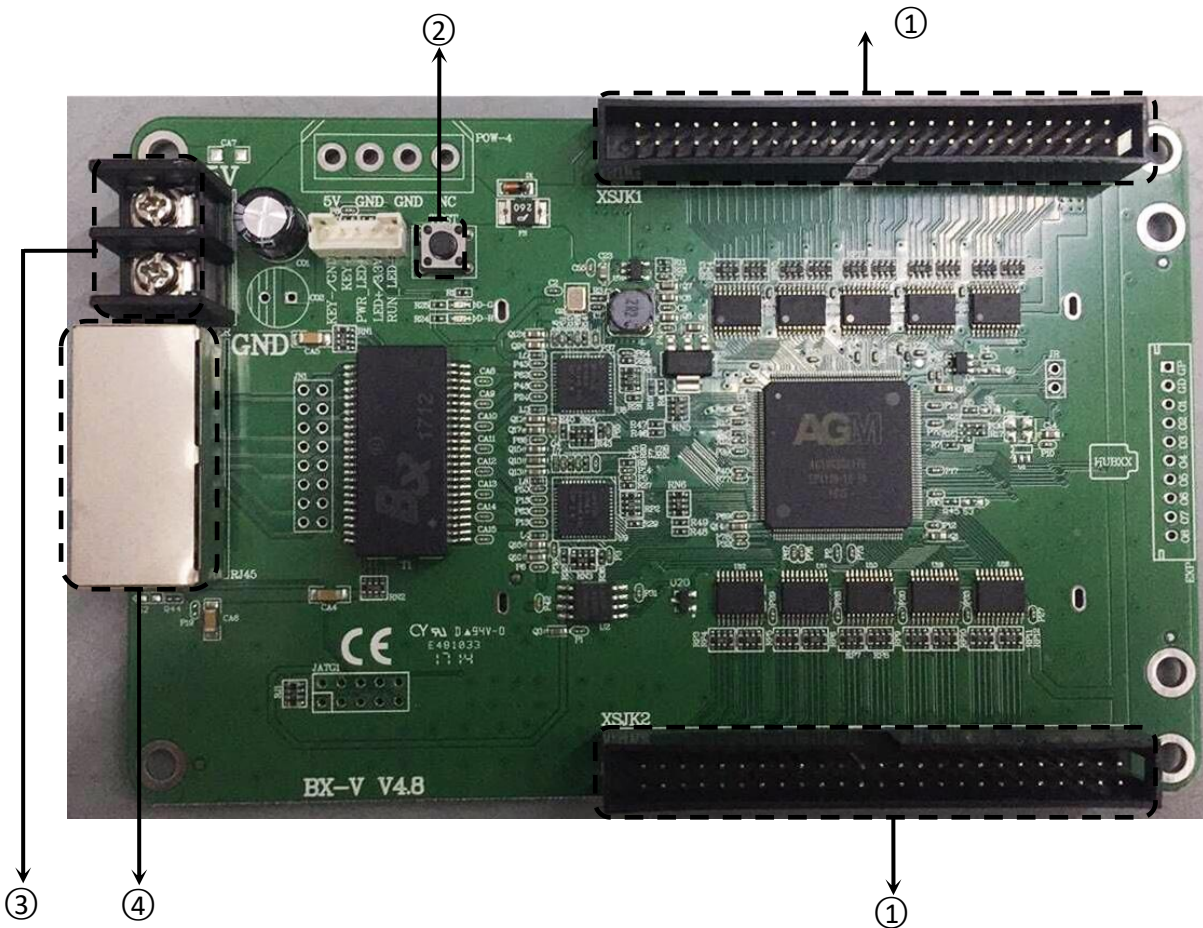
will be weird by your eyes. So, usually, we do not suggest.

## Specification

Screen index	
Parameters	Specification
Minimum size	32 x 32
Control size	256*256
Total pixels	256*256
Cascade quantity	Single LAN cable cascade receiving cards $\leq$ 1024
Gray grade	$\leq$ 65536
Refresh rate	Support 5000Hz, will be changed with the control width.
Screens	All kinds of full color LED screens
Chip	All main LED chip
Interface	2 nos 50PIN,16 nos or 20 nos RGB data
Brightness adjustment	256 grade

Details	
Input power supply	4.5V~5.5V; Please make sure the quality of power supply.
Power Dissipation	$\leq$ 5W
Temperature	-40 $^{\circ}$ C~80 $^{\circ}$ C
Size	56.6mm $\times$ 36.1mm

# Interface Photo



Interface instruction		
1	50PIN interface	50PIN interface ( XSJK1、 XSJK2 )
2	TEST/SELECT	Screen test button
3	Power supply terminal	5V Power supply interface ,direct voltage input , standard 5V , support 4.5V ~ 5.5V
4	1000M	Gigabit network port, connect send card

# Interface Definition

## Functions

Each card support 16 nos RGBN data,20nos RGB data, 32 nos RG data.

## Pin definition

( 1 ) Normal mode

Support full color and dual color screen ,the 50 pin interface definition is as bellow:

Full color screen interface definition									
JK1					JK2				
GND	1	2	VCC		GND	1	2	VCC	
GND	3	4	VCC		GND	3	4	VCC	
GND	5	6	SR		GND	5	6	SR	
E	7	8	B8		E	7	8	B16	
G8	9	10	R8		G16	9	10	R16	
N	11	12	B7		N	11	12	B15	
G7	13	14	R7		G15	13	14	R15	
N	15	16	B6		N	15	16	B14	
G6	17	18	R6		G14	17	18	R14	
N	19	20	B5		N	19	20	B13	
G5	21	22	R5		G13	21	22	R13	
N	23	24	B4		N	23	24	B12	
G4	25	26	R4		G12	25	26	R12	
N	27	28	B3		N	27	28	B11	
G3	29	30	R3		G11	29	30	R11	
N	31	32	B2		N	31	32	B10	
G2	33	34	R2		G10	33	34	R10	
N	35	36	B1		N	35	36	B9	
G1	37	38	R1		G9	37	38	R9	
D	39	40	C		D	39	40	C	
B	41	42	A		B	41	42	A	
LAT	43	44	CLK		LAT	43	44	CLK	
OE	45	46	GND		OE	45	46	GND	

VCC	47	48	GND		VCC	47	48	GND
VCC	49	50	GND		VCC	49	50	GND
Firmware	BX_V_V17041303(VerA) BX_V_V17042603(VerB)							

Dual color screen interface definition								
JK1					JK2			
GND	1	2	VCC		GND	1	2	VCC
GND	3	4	VCC		GND	3	4	VCC
GND	5	6	SR		GND	5	6	SR
G16	7	8	R16		G32	7	8	R32
G15	9	10	R15		G31	9	10	R31
G14	11	12	R14		G30	11	12	R30
G13	13	14	R13		G29	13	14	R29
G12	15	16	R12		G28	15	16	R28
G11	17	18	R11		G27	17	18	R27
G10	19	20	R10		G26	19	20	R26
G9	21	22	R9		G25	21	22	R25
G8	23	24	R8		G24	23	24	R24
G7	25	26	R7		G23	25	26	R23
G6	27	28	R6		G22	27	28	R22
G5	29	30	R5		G21	29	30	R21
G4	31	32	R4		G20	31	32	R20
G3	33	34	R3		G19	33	34	R19
G2	35	36	R2		G18	35	36	R18
G1	37	38	R1		G17	37	38	R17
D	39	40	C		D	39	40	C
B	41	42	A		B	41	42	A
LAT	43	44	CLK		LAT	43	44	CLK
OE	45	46	GND		OE	45	46	GND
VCC	47	48	GND		VCC	47	48	GND
VCC	49	50	GND		VCC	49	50	GND
Firmware	BX_V_V17031301(VerA)							

( 2 ) 20nos data parallel mode

20nos data interface definition									
JK1					JK2				
GND	1	2	VCC		GND	1	2	VCC	
GND	3	4	VCC		GND	3	4	VCC	
GND	5	6	SR		GND	5	6	SR	
E	7	8	NC		E	7	8	NC	
B10	9	10	G10		B20	9	10	G20	
R10	11	12	B9		R20	11	12	B19	
G9	13	14	R9		G19	13	14	R19	
B8	15	16	G8		B18	15	16	G18	
R8	17	18	B7		R18	17	18	B17	
G7	19	20	R7		G17	19	20	R17	
B6	21	22	G6		B16	21	22	G16	
R6	23	24	B5		R16	23	24	B15	
G5	25	26	R5		G15	25	26	R15	
B4	27	28	G4		B14	27	28	G14	
R4	29	30	B3		R14	29	30	B13	
G3	31	32	R3		G13	31	32	R13	
B2	33	34	G2		B12	33	34	G12	
R2	35	36	B1		R12	35	36	B11	
G1	37	38	R1		G11	37	38	R11	
D	39	40	C		D	39	40	C	
B	41	42	A		B	41	42	A	
LAT	43	44	CLK		LAT	43	44	CLK	
OE	45	46	GND		OE	45	46	GND	
VCC	47	48	GND		VCC	47	48	GND	
VCC	49	50	GND		VCC	49	50	GND	
Firmware	BX_V_V17041403(VerA)								



## FAQ

- ◆ Gigabit or Sending card

**If need better shoot effect, choose sending card mode.**

- ◆ Is there any affect for shooting by environment?

Usually, the environment brightness is the biggest fact for shoot. Cause the time of the camera shutter is according the the environment brightness.

In indoor, the brightness is lower, so, the shutter will be slower, usually, 1/60 - 1/200 seconds. In this situation, if the refresh rate is about 1000, the shoot effect will be better.

But if in outside, the brightness is higher, the shutter time will be faster, usually, faster than 1/800 seconds. In this situation, the refresh rate should be about 3000.

So, for same screen, the shoot effect in night is better then in day. And that is the reason why outdoor screen needs a higher refresh rate.



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ONBON APP

