onbon 仰邦科技

User manual

K series single window video controller

(support OVP-K2/ K4/ K6 / K10 / K16)

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Statement

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CATALOG

Safety notice 4
About software 4
Functions 4
PC software 5
Connect with the video processor 5
Set screen parameters 5
Menu button option 10
Front panel 10
Back panel 11
Button introduce 11
Initial status of the home screen 12
Main Menu 12
LED screen parameters 13
Image quality 16
Crop 16
Smart debugging screen 17
Advanced option 19
User mode switch and saved 22
USB display 22
FAQ 24

Instruction

Safety notice

This product has high pressure, non-professional maintenance personnel are not allowed to open the chassis or maintain the equipment by themselves, so as to avoid danger.The input voltage range of AC power supply of this product is 100 ~ 240V, 50/60Hz, please use the correct power supply.This product is grounded through the power cable.To avoid current shocks, insert the power cable into a ground socket before connecting the input or output ports of the product.The protective grounding of the ground conductor in the power cable is essential for safe operation.Before performing any hardware operations, turn off the LED video processor and release the static electricity on your body by touching the ground surface.When you want to connect or unplug any signal or control cables, make sure that all power cables are unplugged.Please use in a clean, dry and ventilated environment. Do not put this product into a high temperature, humid environment.This product is an electronic product. Please keep away from fire, water and inflammable and explosive dangerous goods.If you find strange noise, smoke or odor and other abnormal conditions, you should immediately unplug the power plug and contact the dealer.

About software

It is illegal to change, decompile, disassemble, decrypt or reverse engineer the software installed on this Product.

Functions

OVP-K series splicing processor is developed and produced by the company for LED large screen display, performance and rental, conference room, studio and other markets of high-end video processing equipment.This product adopts 4K image processing and proprietary splicing processing technology designed for small-pitch LED display to ensure the uniformity and synchronization of splicing, and can realize point-to-point input and output for ultra-high resolution LED large screen, so it can effectively eliminate the edge sawtooth phenomenon introduced by image amplification, and reduce the out-of-focus fuzzy sense after image enlargement.Single screen K series video controller is divided into OVP-K2/ K4/ K6 / K10/ K16 A total of 5, K2 as an example to introduce the use of K2, other models of single screen K series video controller use method is similar to K2.

PC software

Connect with the video processor

1. Double-click “BxSetPro” Software and choose Synchronize Device.Connection modes include Online Search, Manual Add and Gigabit Network.Click Online Screen Search to enter the screen for searching video controllers.
2. The communication mode of the video processor can be LAN, Serial Port Connection, or Specified IP. In this case, select serial port connection from K2, click search, and the searched device will be displayed in device list.

Set screen parameters

Click "Set screen parameters", enter "888" password in the pop-up dialog box, and click "OK" button to enter the "Set screen parameters" interface, which is divided into four parts: screen information, scanning parameters, receiving card connection and firmware upgrade.

1. Screen info

In Screen Information, you can view the information about the controller card of the added screen. In addition, you can perform operations such as the number of split screens, output configuration, video processor settings, network port hot backup, communication, import and export device parameter files, and read back device parameters.Click "Save" after setting.

2. Receive card connection

Before setting up the receiving card, the user should ensure that the source selected by the video controller has signal input.

Click "Receiving card Connection" to enter the receiving card connection interface, and set the number of receiving cards in horizontal and vertical directions according to the actual receiving card connection, as shown in the following figure.Set the width and height of the receiving card according to the actual width and height of the receiving card connection LED screen. After setting, select "Shortcut route" to set the connection mode of the receiving card, and finally click "Send specified connection" or "Send all connections" to complete the connection configuration of the receiving card, as shown in the following figure.

3. Firmware update

In order to ensure that the software version in the sending device matches the BXsetPro software, the sending device firmware can be maintained first.

- **Device firmware update**

Click "Device" in "Firmware Update", and then click "Query Device" button to find out the connected device, as shown in the picture below:

Then select "Loading firmware", then select the upgrade program of the corresponding device, and finally click "Upgrade" to complete the update of the device program.

- **Receive card firmware update**

Click "Receiving Card" in "Firmware Update", and then click "Query Receiving card" button to find out the connected receiving card, as shown in the picture below:

Then select "Loading firmware", then select the upgrade program of the corresponding device, and finally click "Upgrade" to complete the update of the device program.

4. Network port hot backup

K-series devices support backup between network ports. To set network port backup, you need to use the BXsetPro software, as shown in the following figure:

Step 1: On the screen info screen, tap the network port hot backup button to open the pop-up window.

Step 2: In the Network port hot backup window, add information about the main control network port and backup network port.

Step 3: In the network port hot backup window, click Send to complete the network port hot backup

Menu button option

In order to facilitate the user to quickly and conveniently switch the input signal source and user mode of the video controller and set the parameters of the video controller, the front panel of the video processor is equipped with an LCD screen and corresponding shortcut keys, and the back panel is installed with LAN, COM and other control ports as well as input and output ports, as shown below:

Front panel

Interface	
1	Power switch
2	2.0”full color LCD screen（320×240）
3	In the non-menu state, click [OK] key to enter the main menu, and then select "Mode call" to enter the mode call menu. Rotate [knob] to select the saving mode and press [OK] key to save.
4	ESC key [ESC] Return key.
5	**INPUT area** In the input source selection key area, there are six keys from [HDMI1] to [CV], and six input source port selection keys, corresponding to the input interface identification on the rear panel. HDMI1: HDMI1 Input source key, which is reused as “▶" when playing the USB flash drive to play the file. HDMI2: HDMI2 Input source key, which is reused as "■" when playing on the USB flash drive and suspends the file. USB/EXIT: USB playback button, which can be reused as EXIT to exit the playback mode of the USB flash drive. DVI: DVI input source key, which is reused as " ⏮" to play the previous piece of the current file when playing the USB flash drive. VGA: VGA input source key, which is reused as "⏭" when playing the USB flash drive to play the next track of the current file. CV: CV Input source key.
6	**FUNCTION area** This area is a shortcut setting for some functions, including the following two buttons:[BRIGHT] : shortcut key for brightness adjustment.[PART] : Switch between partial display and full-screen display.
7	**Front-end USB2.0 port:** When connecting a USB flash drive as the input source, the requirements for the USB flash drive and its files are as follows: **Usb flash drive file system:** support NTFS, FAT32 and FAT16, do not support exFAT (FAT64), and USB flash drive cannot be partitioned and used as a system boot disk; **Support video file formats:** h. 264, h. 265 (HEVC), MPEG1\2, MPEG4, WMV3, AVS,'s VC1, RV30 \ RV40, DivX. **Note:** When the video file format is H.264, 1920x1080@60fps is supported for the playback of the maximum resolution video file, and 1920x1080@30fps is

	supported for the playback of other video file formats. **Support image file format:**JPEG, maximum resolution 15360×8640 PNG, maximum resolution 9600×6400BMP, maximum resolution 9600×6400 **Note:** JPEG uses hard decoding, PNG and BMP use soft decoding. **U disk playback mode:** Support video playback, picture playback, video and picture mixed play three modes.

Back panel

Video output port		
1	LED1~LED2	Two Gigabit network port output ports connected to the receiving card. Maximum load 1.31 million pixels, width ≤3840, height ≤2500;

Video input port		
2	DVI×1	VESA standard ： 1920x1080@60Hz backward compatibility, support 3840x2160@30Hz
3-4	HDMI1.4*2	VESA standard ： 1920x1080@60Hz backward compatibility ， HDMI 1.4
5	VGA×1	VESA standard ： UXGA@60Hz backward compatibility
6	CV×1	Support PAL \ NTSC composite video

Audio input/output interface		
7	HDMI audio	HDMI video input port embedded
	AUDIO_IN	Analog audio input port.
	AUDIO_OUT	Analog audio output port.

Control interface		
8	COM	USB control port
9	LAN	LAN control port
10	RS232	Central control interface

Power interface		
11	Input voltage	100-240V~50/60Hz

Button introduce

The key operation area related to the MENU is the menu area, which contains a knob button confirmation key [OK] and a return key [ESC].

In the initial state of the system, press [OK] to enter the main menu setting screen.When the back key is pressed, the menu system will return to the previous level of menus successively until it returns to the initial state.

In the browsing state, rotate [knob] counterclockwise, and the cursor moves to the top or left;Turn the knob clockwise and the cursor moves down or to the right.When moving the cursor to the item to be adjusted, press the [OK] key to enter the corresponding setting submenu. At this time, rotate the [knob] counterclockwise to reduce the current parameter value;Turn [knob] clockwise to increase the current parameter value.If the adjustment is complete, press the [OK] key to write and save the data.To return to the previous menu, please use the back key;Until you return to the initial state.You can press [GUIDE] to quickly switch to the Smart Navigation screen.

Note: Rotation [knob] can not be too fast, otherwise the value adjustment change is small, should be uniform rotation.

Initial status of the home screen

During the system startup process, the LCD screen will display the startup interface. After the startup is completed, the current machine status will be displayed on the screen. The initial menu for system startup is shown as follows:

In the above figure, three areas are displayed, as follows:

- **Enter:**The input source selection information is displayed, including the input source signal format detected by the system;If the input source is USB, the playback status information of the USB flash drive is displayed.
- **Output**:The first line: display the actual LED screen size set by the user;
  The second line: displays the prompt message
- **Top right:**The current contrast, brightness values, and key lock status are displayed.

Main Menu

The device uses 2.0 inch LCD display software menu, LCD display pixel is 320*240, using the font 24*24 can display 10 lines.The user operation menu is divided into six categories. Click [OK] in the non-menu state to pop up the main menu:

Main menu and sub-menu membership:

Main menu	**Level 2 and Level 3 sub-menus**
Output	LED screen size (horizontal width, vertical height)Network port output Settings (Network port LED1-LED8: horizontal width, vertical height, horizontal start, vertical start)Display window adjustment (horizontal start, vertical start, horizontal width, vertical height)Point-to-point output (on, off)
Image	Brightness, sharpness, contrast, saturation, dynamic contrast, color temperature
Crop	Intercept switch, intercept width, intercept height, horizontal start, vertical start
Screen	Quick screen, load scanning, parameter curing, Mapping
Mode	Mode 1 - mode 8
Option	**Input EDID**(horizontal width, vertical height, refresh rate) **U disk Settings** (play file type, play form, picture playing time) **VGA Settings** (automatic adjustment, horizontal start, vertical start, VGA ADC correction)The receiving card restores itself **Other Settings** (toggle effects, sound Settings, input hot backup, screen projection device) **Test chart** (closed, Figure 1 to Figure 8)Key lock (open, close) **Factory Settings** (ADC calibration, language selection, factory reset, firmware version)

LED screen parameters

Click [OK] in the non-menu state to enter the main menu, and then select "Output Settings", the following menu will pop up:

1. LED screen size

In the non-menu state, click [OK] to enter the main menu, then select "Output Settings", and then select "LED screen size" to enter the LED screen size menu:

After the LED screen size is set, the system will be reset, and users need to wait patiently for the system to reset.

Attention:

(1) When the PC control software completes the "accept card connection" setting of each network port of the LED screen, it will automatically calculate the LED screen size and synchronize the update to the controller, so it is generally not necessary to set the LED screen parameters (including the LED screen size and network port parameters);

(2) If there is a setting archive before, you can complete the "LED screen parameter" data synchronization through the PC control software "import \ export configuration";

(3) The width and height of each network port must be consistent with the local size of the LED screen covered by the interface card of each network port. By changing the starting position of each network port, arbitrary splicing of the LED screen can be achieved (that is, any part of the screen can be displayed or repeated display of each gigabit network port);

(4) Pay attention to the value range of the LED screen size and the total number of load points of the LED screen.

2. LAN SETTING

In the non-menu state, click [OK] to enter the main menu, then select "output Settings", and then select "Network port output Settings" to enter the network port output Settings menu:

Attention:
(1) As mentioned above, when the PC control software completes the "accept card connection" setting of each network port of the LED screen, it will automatically calculate the LED screen size and synchronize the update to the controller, so it is generally not necessary to set the LED screen parameters (including the LED screen size and network port parameters);
(2) When you need to perform "Any splicing" or set each network port, please pay attention to the value range of the width and height of a single network port and the number of points on load:

3. Image size

In the non-menu state, click [OK] key to enter the main menu, then select "Output Settings", and then select "Display window Adjustment" to enter the display window Settings menu:

Note: No matter the input image ratio is 4:3 or 16:9, the output image is displayed "full screen" by default, so in some cases, it will cause the character equal proportion distortion, at this time, you can change the image aspect ratio by "display window adjustment".

4. Point-point output

In the non-menu state, click [OK] key to enter the main menu, then select "Output Settings", and then select "point-to-point output" to enter the point-to-point output Settings: on or off.

Note:

(1) When the point-to-point output is on, the controller outputs the input image to the LED screen without any scaling, so it is very convenient to debug the LED screen module (tracing point display, etc.);

(2) When the Input EDIDis set to the same size as the LED through the "Advanced Options - Input resolution" menu, the best display effect can be achieved because the image is not scaled.

Image quality

In the non-menu state, click [OK] key to enter the main menu, and then select "Image effects" to enter the image effects menu.

- Brightness: The value ranges from 0 to 100. The default value is 50.
- Sharpness: The value ranges from 0 to 10. The default value is 5.
- Contrast ratio: The value ranges from 0 to 100. The default value is 50.
- Saturation: The value ranges from 0 to 100. The default value is 50.
- Dynamic contrast ratio: The value ranges from 0 to 4. The default value is 1.0 indicates that the value is off. This parameter is not applicable to the input VGA signal source.
- Color temperature type: "Warm", "natural", "cold", "Custom" there are four options.
- Color temperature customization: Red adjustment range 0-100.
- Blue Adjustment range 0-100.
- Green The value ranges from 0 to 100.

Note: The "BRIGHT" shortcut key on the panel can also be immediately changed out of the above menu for "brightness" adjustment.

Crop

In the non-menu state, click [OK] to enter the main menu, and then select "Image capture" to enter the image capture menu:

- Capture switch: The input image capture function is on or off. The default value is off.
- Intercept width: The minimum value is 128, the maximum value is "width of the input signal".
- Intercept height: minimum value is 128, maximum value is "input signal height".
- Horizontal start: minimum value is 0, maximum value is the difference between "width of input signal" minus "intercept width".
- Vertical start: Minimum value is 0, maximum value is the difference between "height of input signal" minus "height of intercept".

Attention:

(1) Image interception is for the input source, so the width and height range of the interception can not exceed the resolution of the current intercepted source, and the interception will not work if it exceeds the resolution.(2) Through the panel input source selection shortcut key can select different input sources for image interception.

Smart debugging screen

In the non-menu state, click [OK] to enter the main menu, and then select "Smart screen adjustment" to enter the smart screen adjustment menu:

1. Fast start screen

1.1. Preconditions:

- The display is a regular display, not a special-shaped display.
- The scanning parameters of the display module need to be preset by the BXsetPro software.
- The display boxes are rectangular with the same resolution.

1.2. Steps:

Step 1: Power on the OVP device and LED display;

Step 2: Press the knob on the main screen to enter the menu screen;

Step 3: Turn the knob and choose Smart Screen > Shortcut Screen. The Shortcut Screen is displayed.

Step 4: Perform Box Setting, Select Network Port, and Screen Parameter Setting in three steps as instructed.

Step 5: Click the "Send" button to complete the operation

2. Load scan parameters

Users can use the BXsetPro software to send the scanned file to the device, and then select the scanned file on the video processor to load it.

Operation procedure

Step 1: Select a network port.

Step 2: Select the scanned file to be loaded, and then select the "Send" button. Press the button to send the file successfully.

3. Parameter curing operation

The user can solidify the parameters of the currently loaded scanned file, enter the menu and press the knob to send.

4. Mapping

If the Mapping function is enabled, the serial number of the loaded network port and the serial number of the container are displayed on the target container on the LED display.

Advanced option

In the non-menu state, click [OK] to enter the main menu, and then select "Advanced Options" to enter the advanced options menu:

1. Input EDID

Input EDID setting provides the user with DVI/HDMI input signal source EDID editing function, that is, set the recommended resolution of the input signal source, WIN7 computer graphics card can automatically read the EDID recommended resolution of the input DVI/HDMI port of the device, that is, the computer output recommended resolution;After setting the Input EDID above WIN10, you need to manually select "recommended resolution" on the computer side.

Through the input EDID setting, the user can realize the input and output point-to-point display of ultra-high resolution LED large screen in the range of 3840x2160. Because the point-to-point display does not scale the input image, the display image on the LED large screen can reach the highest definition.

Select input EDID in "Advanced Options" to enter the Input EDID menu:

- Horizontal width: adjustment range 640-4093
- Vertical height: Adjustment range 480-2160
- Refresh rate: Adjust range 30 or 60

Attention:

The actual adjustment range is related to the interface type and input bandwidth limit. For this device, because the HDMI standard of the input source of the system is HDMI2.0, the input resolution of the highest 4K level can be reached: 3840x2160@60Hz.

2. USB setting

Select USB settings in "Advanced Options" to enter the USB flash drive settings

- Play file type: video or image
- Play format: sequence or single
- Playback duration (seconds) : 1 ~ 99

See the following U disk playback instructions for details.

3. VGA setting

Select VGA Settings in "Advanced Options" to enter the VGA Settings menu:

- Horizontal start: Adjustment range 0-300.
- Vertical start: Adjust the value from 0 to 300.

Attention:

(1) The actual adjustable range of horizontal start and vertical start is determined by the internal calculation of the system.

(2) Under normal circumstances, when the VGA input image is offset, the picture position can be corrected by several automatic adjustments.If the automatic adjustment is not effective, use the manual adjustment screen "horizontal start" and "vertical start" bit.

(3) VGA screen is dark, the execution of the "ADC correction" can be, generally before the factory will be corrected.

4. Planned task

Select Timing switch in "Advanced Options" to enter the timing switch Settings menu:

PLANNED TASK		
Planned task		OPEN
Time	2021-12-09	16:50
Task1	18:00	Open
Task2	18:00	Open
Task3	18:00	Open
Task4	18:00	Open
Task5	18:00	Open

Attention:
(1) The user must first calibrate the internal clock of the system before using the timing switch function, and the calibration is completed by the PC software.
(2) When the timing switch is turned on, several tasks can be set, and different user modes can be called in different time periods (the user mode must be saved in advance), and the task Settings are also completed by the PC software;
(3) When the timing switch is on and the task is effective, the timing switch can be turned off or on at any time through the LCD menu.

5. Other setting

OTHER SETTING	
Switch mode	Seamless
Sound setup	→
Hot spares	HDMI1
Wireless device	OK to change

SOUND SET	
Audio	OPEN
Volume	50
Sound setup only valid to HDMI, SDI input	

- **Switch mode:** including "seamless quick cut" and "fade in fade out" two special effe
- **Sound Settup:** Includes audio switch and volume Settings.
- **Hot spares:** You can choose different backup signal sources, so that when a screen input signal is accidentally lost, the system can automatically and quickly switch to the backup signal source.
- **Wireless device:** Use an electronic device that supports Android OS or Apple OS for screen projection display.

6. Test diagram

8 test images inside the system can be provided: Figure 1 ~ Figure 8, the default is "off"。

7. Keylock

The default value is Off. When Keylock is enabled, pressing any key except the [OK] key does not work.

8. Factory setup

- **ADC correct:** Used to calibrate VGA \ CV input sources, usually before delivery.
- **Language:** The options are Chinese and ENG. The default value is Chinese.
- **Factory reset:** Resets the factory default value.
- **Version :** Displays the current software and hardware versions and factory date.

User mode switch and saved

In the non-menu state, click [OK] key to enter the main menu, and then select "Mode call" to enter the mode call menu. Rotate [knob] to select the saving mode and press [OK] key to save.

Attention:

(1) The solid circle in front of the mode indicates that the current selected mode data already exists, and the hollow circle indicates that the current selected mode data does not exist.

(2) Up to 8 user modes can be saved, and the parameters saved in user mode include brightness, contrast, in addition to the size, position and status of the picture.

USB display

First, insert the USB flash drive with the playback content (video or picture) into the USB port on the front panel, and then press the input key "USB/EXIT" on the front panel, the pop-up window "Select the playback file type" will pop up, and the user can select "video", "picture", "sequence" to play the file.If no playable file is found, the LCD displays No playable file.If the USB flash drive is playing, press "■" to display" Stop playing ";Press the key ▶again to continue playing the

content.Users can also press the " ⏮" key or" ⏭"key to select the previous program or the next program.

Attention::

（1）The content of the USB flash drive must be stored in the root directory of the USB flash drive, if you want to play the files in order, you can rename the file, add the Arabic digits 1, 2, 3,...It is OK;

（2）**Video file formats supported by this system:**

HEVC(H.265)、MPEG2、GAAC、Miracast、MPEG2、MPEG4_HD、MPEG4、RM、MVC、VP9、DD、MPEG4_SD、H.264、VC1、VP8、FLV

Film file format: JPG, BMP, PNG

(3)Copy all supported files in the U disk will be displayed when viewing the file list, if it is not displayed, it indicates that the file is not supported.

FAQ

This system is a professional equipment, and the use of some functions requires the user to have considerable professional knowledge.When the user encounters a problem, you can try to adjust the machine yourself, if the following steps can not be solved, please contact your local dealer, or directly contact the company's after-sales service department.For your safety, do not attempt to fix the product yourself.

Fault	Check and adjust project details
The LCD screen has no display or image output.	● Check whether the power cable is in poor contact. ● Check whether the power switch is on.
The LCD screen has information display, but no image output	● Check that the input signal is correctly connected and switched to the corresponding signal source. ● Check whether the display terminal supports the output resolution and refresh rate of the device. ● Check that the brightness and contrast are set too low. ● Try to restore the machine to factory values through Factory Reset in the Advanced Options submenu.
The image on the LED screen cannot be displayed in full screen.	● Check whether the value of "LED screen width, LED screen height" is consistent with the physical resolution of the LED screen.The "Image Output" menu is displayed to set parameters.
The VGA input image is not centered.	● Press the AUTO key on the front panel to automatically correct the position and phase of the current input image (for automatic adjustment, please use a full screen signal without black edge).
The LED screen image is displayed in the center with black edges around it.	● This problem is easy to occur when the computer graphics card is output to the video processor interface VGA, DVI, HDMI.If the processor Settings are correct, check the computer graphics card properties Settings and select "Keep display Zoom ratio".
Panel buttons do not respond to operation.	● Check whether the key lock is enabled on the LCD screen), press the knob to enter the main menu, and set the key lock off (close icon) in the "Advanced" menu.

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