BRIGHTLINK HDMI KVM Extender

Over Ethernet/Fiber

Model: BL-EXT-IP-264-4KVW-RX

Operation Instructions



BRIGHTLINKAV.COM



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MODEL # BL-EXT-IP-264-4KVW-RX - Operating Instructions 1. INTRODUCTION

The 4K HDMI & USB over IP Extender is a solution for audio, video and USB signal extension via Local Area Network (LAN). It can be used as audio, video and KVM extender over IP and applied to point to point,

point to multi-point, multi-point to multi-point and screen wall broadcast system controlled by USB, RS232, IR and configured the 4K HDMI & USB over IP Extender by web browser. An easy installation system built up with Giga Ethernet switch which has IGMP function and CATx cable for extension or broadcast.

2. FEATURES

- > 4K UHD HDMI over IP extension
- USB 2.0 over IP extension
- RS232 bi-directional extension and RS232 control
- 4 bits switch for 16 stream channel selection
- Support Dolby True HD, DTS-HD Master Audio
- Support two way Wide Band IR extension (38khz-56khz)
- > Transmit over single Cat5e/6 cable up to 120m
- > Transmitter over Fiber Optical cable up to 60km (Single Mode)
- > Networking environment under Giga Ethernet switch and CAT5e cable
- Point to point extension, Unicast, Multicast and Video Wall system (Max 8x16)
- Output video rotation
- > Output video partial enlargement
- 802.3af compliant POE (No need power supply when connecting with POE Switch)
- HDCP 1.4 compliant

3. PACKAGE CONTENTS

- 1). Main Unit. HDMI Extender (Receiver)
- 2). 1x Power adapter DC 5V
- 3). 1x IR TX cables, 1x IR RX cables
- 4). 1x Phoenix plugs for RS232 cable termination
- 5). 4x screws
- 6). 2x detachable mounting ears
- 7). Operating Instruction manual

MODEL # BL-EXT-IP-264-4KVW-RX - Operating Instructions 4. SPECIFICATION

Performance	
Protocol	TCP, UDP, RTSP, RTP, DHCP, IGMP, Multicast, IPV4
Support Video format	4K@30HZ, 1080P/1080i/720P/576P/576i/480P/480i
Support Audio format	Stereo 192Kbps
HDCP	Compliant
IR Frequency	38 -56 KHZ
RS232 Baud rate	Default 115200bps, total 8 kinds optional
IP setting &Group ID setting	
Default IP	Automatic allocation
Group ID	(Group 00 ~ group 15) by DIP Switch
Request for Switch/Router	Support IGMP, support DHCP
Connectors on Receiver	
Input	1xRJ45 input, 1x Fiber input
Output	1x HDMI Female port, 2x USB A type
RS232	Phoenix RS232 port
	1x IR TX port; 1x IR RX port
	Support 38K-56KHz
Environmental & Power Requirements	
Operating temperature	-5 to +35 ℃ (+23 to +95°F)
Operating Humidity Range	5 to 90%RH (No Condensation)
Power supply	DC 5V
Power consumption	Max 3 watt
Physical	
Dimension	RX: 160x103.2x30mm
Net Weight	RX:472.3G

Note1: Specifications are subject to change without notice. Mass and dimensions are approximate.

Note2: When transmit over Fiber, 4Kx2K requires 3.125G module.

5. HARDWARE DESCRIPTION

5.1 Receiver





1) IR-RX port





4) Normal: For serial over IP;

Program: For serial control or getting the debug information

- 5) 4 bit Dip switch
- 8) Indicator of status B
- 11) HDMI output
- 13) Power input indicator
- 6) Group Switch 1 9) Fiber In
- 7) Button 1 & 2 2 10) Ethernet port
- 12) USB 14) Power input port

After select the DIP switch, press "Group Switch" button for 1 second.

Please refer to 5.2.

3 When the green LED illuminates, it indicates the connection has bee n established between transmitter and receiver over fiber cable.

A. Green LED: Link LED, when the connection has established over Cat5e/6 cable or Fiber cable, the Green LED will illuminate.

B. Yellow LED: When the yellow LED is blinking, it indicates the conne ction has been established over Cat5e/6 cable.

4 bits DIP Switch:

Use 4bits DIP switch to select 16 group ID (such as 0001, 0010, 0101 etc)

5.2 Descriptions Buttons:

(Host: Transmitter; Client: Receiver)

Button State for Unicast Mode: HDMI Extender:

Default Mode will be highlighted in GREEN

* Item will be described in Descriptions

Unicast Digital	Button State			
	Transmitter		Receiver	
	Button One :	Button Two :	Button One :	Button Two :
Short Press	Remote/Loopback*	Video Mode/	Link on : Link	Video Mode/
		Graphic Mode*	Link off : Unlink	Graphic Mode*
Long Press(3 sec)	Snoop (on/off)*	Anti-Dither	N/A	Anti-Dither
		(1/2/off)*		(1/2/off)*
Short Press when	BYPASS	BYPASS	BYPASS	BYPASS
Ethernet Link is Off				
Long Press when	BYPASS	Ethernet Jumbo Frame	BYPASS	Ethernet Jumbo Frame
Ethernet Link is Off		(on/off)*		(on/off)*
Long Press on Boot	Engineering Mode*	N/A	Engineering Mode*	N/A
(Press until Red LED				
Blinking)				
Long Press on Boot	Engineering Mode and	N/A	Engineering Mode and	N/A
(Press until both Red LED	Reset to default*		Reset to default*	
and Green LED Blinking)				

Descriptions:

Feature /Button Feature	Descriptions
Remote/Loopback	When System is all setup, short press this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side. Long Press this button will for
	the local loop back port to be enabled for Snooping feature.
Video Mode/ Graphic Mode	User can select to change between Video Mode / Graphic Mode using this button. The button state
	will be save to flash, and remember after rebooting.
	Video Mode: FW will automatically trade-off between bandwidth and video quality to ensure
	smooth video playing experience.
	Graphic Mode: FW will fix the trade-off to ensure best graphic/text viewing experience.
Anti-Dither (1/2/off)	Anti-Dithering Mode is design to work with ATI graphic cards that provide dithering output.
	Dithering output is used to make coloring looks better than it's original color depth. It uses visual
	transient to create a half-tone effect. However, this presents great difficulty for Video Compression
	to maintain low bandwidth even if the source display seems static.
	Currently, we only see Dithering Output with ATI graphic cards.
	To resolve this issue, AST1500 provides Anti-dithering for 1 bit, 2 bit, or off.
	If the source content does not generate dithering output and this feature is turn on. It will create a
	blocking effect because Video Engine are unable to detect pixel changes. User can avoid this
	issue by turning this feature to off.
Engineering Mode	1. Static IP: 192.168.0.88
	2. User can connect to http://192.168.0.88 webpage for firmware update.
	3. Firmware update file name will be:
Poset to Default	Cilent, webrwc.bin
Reset to Default	1. Reset Any changes in SPT liash setup hag.
	z. Regenerate Random mac to avoid any possible was collision. Alter Reset to Delault and
Ethernet Jumbo Frame	1 This feature is only available on AST1510 and above AST1500 will be by page the event
Latende dumber hand	2 Enable/Disable Ethernet jumbo frame
	 If link LED is solid then jumbo is enabled. If link LED is blinking then jumbo is disabled.

Buttons that shall not be removed for this setup:

Depending on customer feature needs.

Example: If customer have loopback feature, than button one is required.

Button State for Multicast Mode: HDMI Extender:

Default Mode will be highlighted in GREEN

* Item will be described in Descriptions

Multicast Digital	Button State			
	Transmitter		Receiver	
	Button One:	Button Two:	Button One:	Button Two:
Short Press	Remote/Loopback*	Video Mode/	Link on: Link	Video Mode/
		Graphic Mode*	Link off: Unlink	Graphic Mode*
Long Press (3 sec)	Snoop (on/off)*	Anti-Dither	USB Link (on/off)	Anti-Dither
		(1/2/off)		(1/2/off)*
Short Press when	BYPASS	BYPASS	BYPASS	BYPASS
Ethernet Link is Off				
Long Press when	BYPASS	Ethernet Jumbo Frame	BYPASS	Ethernet Jumbo Frame
Ethernet Link is Off		(on/off)*		(on/off)*
Long Press on Boot	Engineering Mode*	Use Loopback EDID	Engineering Mode*	Update EDID*
(Press until Red LED Blinking)		(>A1.2)*		
Long Press on Boot	Engineering Mode and	N/A	Engineering Mode	N/A
(Press until	Reset to default*		and	
Red LED and			Reset to default*	
Green LED Blinking)				

Descriptions:

Feature /Button Feature	Descriptions
Remote/Loop back	When System is all setup, short press this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side. Long Press this button will for the
	local loop back port to be enabled for Snooping feature.
Video Mode/ Graphic Mode	User can select to change between Video Mode / Graphic Mode using this button. The button state will
	be save to flash, and remember after rebooting.
	Video Mode: FW will automatically trade-off between bandwidth and video quality to ensure smooth
	video naving experience
	Graphic Mode: FW will fix the trade-off to ensure best graphic/text viewing experience.
Anti-Dither (1/2/off)	Anti-Dithering Mode is design to work with ATI graphic cards that provide dithering output. Dithering
	output is used to make coloring looks better than it's original color depth. It uses visual transient to create
	a half-tone effect. However, this presents great difficulty for Video Compression to maintain low
	bandwidth even if the source display seems static.
	Currently, we only see Dithering Output with ATI graphic cards.
	To resolve this issue, AST1500 provides Anti-dithering for 1 bit, 2 bit, or off.
	If the source content does not generate dithering output and this feature is turn on. It will create a
	blocking effect because Video Engine are unable to detect pixel changes. User can avoid this issue by
	turning this feature to off.
Use Loopback EDID(>A1.2)	This feature should be consider with the client side "Update EDID" feature.
Update EDID	"Use Loopback EDID" & "Update EDID" feature is used for Multicast Mode to select which monitor/TV
	EDID is used for system wide EDID usage.
	During multicast setup, there maybe monitor/TV that has lower resolution. For example, 1 monitor/TV
	with 720p resolution with mostly 1080p solutions. Please select the monitor/TV with lowest resolution to
	ensure all can be displayed correctly.
	For customer that are using 1 pair or Host/Client with Multicast mode, the end user must update EDID
	correctly. If not, it will cause many compatibility issue.
	Operation:
	Once the button event is triggered correctly at the client side, when system is setup correctly for
	Multicast. The selected EDID will be update to Host Side EEPROM (HU7).
	The same operation applies for Loopback EDID.
	In the system setup, the last EDID updated will stay in the EEPROM. If customer setup this button even
	many times, the last one triggered will be applied.
USB Link (ON/OFF)	This feature is used for USB with Multicast Mode setup.
	The selected client can gain control by pressing USB Link, and release control by pressing USB Link
	again.
	Other clients can also gain control by pressing USB Link. The control will be transfer to whichever client
	requests USB Link.
Engineering Mode	1. Static IP: 192.168.0.88
	2. User can connect to http://192.168.0.88 webpage for firmware update.
	3. Firmware update file name will be:
	Host : webtwh.bin
D (1) D (1)	
Reset to Default	1. Reset Any changes in SPI flash setup flag.
	2. Re-generate Random mac to avoid any possible MAC collision. After Reset to Default and reboot
Ethornet Jumbo From-	uyore, a new random mac will be generated.
Emernel Jumpo Frame	2. Enable/Disable Ethernet jumbe frame
	2. Enable Dissole Etternet jumbo name. 3. If link LED is solid then jumbo is enabled. If link LED is blinking then jumbo is disabled.
1	o. I mine LED is solid then jumbo is enabled. If mine LED is billining then jumbo is disabled.

MODEL # BL-EXT-IP-264-4KVW-RX - Operating Instructions 6. INSTALLATION

6.1 Device Connection

1. Check the power supply is unplugged.

2. Set up the group of the transmitter with the correspondent receiver for signal extension and display.

3. Connect the Transmitter to video source with HDMI cable, and connect Receiver to a monitor or display with HDMI cable.

4. Connect the USB cables from Transmitter to PC, and connect the USB additional devices such as USB mouse, USB keyboard and USB pen drive to Receiver.

5. Connect Transmitter and Receiver to the Ethernet switch with network cable.

6. Power on the Transmitter, Receiver and all the connected devices.

7. Power on and activate all the connected devices.

8. Connect the IR extension cable with Transmitter and the IR receiver cable with Receiver for remote control.



Application Pattern

Unicast



Multicast

a. Video Distribution



b. Matrix Distribution



c. Billboard & Kiosk, PC to HDMI and USB Interactive Monitor





6.2 PC Tool Instructions

Step 1: Make sure the HDMI extender and and PC are in the same domain. (Refer to 6.3)

Step 2: Open the PC Tool.



Step 3: Click "Scan".

Scan	Upgrade Factory Default	Reboot	Video Wall Bezel and Gap Compensation(Unit: 0. Imm) OW: 0 OH: 0
Device Info Version: Ho	thame ID: Lan Status:	MAC Address:	VW: 0 VH: 0 Wall Size and Position Layout
тх	Casting Mode	RX .	Vertical Monitor Count: 5 • Horizontal Monitor Count: 5 •
IP Hostname II	Multicast D Unicast Multicast D:	IP Multicast IP CSI	0,9 0,1 0,7 0,3 0,4 1,9 1,1 1,2 1,9 1,4
	19 Mode O Auto 19 O DHCP O Static	8	2,9 2,1 2,2 2,3 2,4 3,9 3,1 3,2 3,3 3,4
	IP Address:		4.0 4.1 4.2 4.3 4.4 Preference
	Subnet Masic · · · ·		Clockwise Rotate: 0 -

Step 4: Choose the TX or RX name.

scan Upg	Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0. 1mm) OW: 0 OH: 0
Device Info			WH: 0
Hostname ID: 00	Lan Status: s_attaching	MAC Address: 0240F5C5E505	Wall Size and Position Layout Vertical Monitor Count: S
TX	Casting Mode	RX	Horizontal Monitor Count: 5
IP Hostname ID 169-254-8-52 00	Multicast O Unicast Multicast IP: 225.0.100.0	19 Multicast IP OSI 169.254.5.9 225.0.100.0 0	0.0 0.1 0.2 0.3 0.4 1.0 1.1 1.2 1.3 1.4
	IP Hode @ Auto IP ① DHCP ① Static		20 21 22 23 24 30 31 32 33 34 40 41 42 43 44
	IP Address: 169 + 254 + 8 + 52 Subnet Mask: 255 + 255 + 0 + 0		Preference Stretch Type: Fit In • Clackwise Rotate: 0 •
21	Default Gateway: 169 . 254 . 0 . 1		

Step 5: Change the IP/Host name ID/Casting Mode/Multicast IP/IP Mode/ Device name on the PC tool interface.

Step 6: Click "Apply".

scan Upg	yade Factory Default	Reboot	Apply	Wdeo Wall Bezel and Gap Compensati	on(Unit: 0.1mm) OH: 0
			_	VW: 0	VH: 0
Device Info Hostname ID: 01	Lan Status: s_attaching	MAC Address: 024	OF5CSE505	Wall Size and Position Layo Vertical Monitor Count:	ut [5 •
тх	Casting Mode			Horizontal Monitor Count:	S 🔻
IP Hostname ID 169.254.8.52 01	Multicast Unic Multicast IP: 225.0.100.1	Apply success	Multicast IP OSI	0_0 0_1 0_2 1_0 1_1 1_2	0,3 0_4 1,3 1,4
	IP Mode	ОК		2_0 2_1 2_2	2_3 2_4
	Auto IP O DHCP O St	atic	2	3_0 3_1 3_2	3_3 3_4
				4.0 4.1 4.2	43 44
	IP Address: 169 , 254 , 8 ,	52		Preference	
	Subnet Mask: 255 - 255 - 0 -	0		Stretch Type:	[Fit In 🔻
*1	Default Gateway: 169 . 254 . 0 .	1 7 10		Clockwise Rotate:	0 •

6.2.1 Multicast

Please Click "Multicast" on the PC tool under One to Many or Many to Many Mode.

etwork	ade	Factory Def	n.R	Reboot	Apply	Video Wall Bezel and OW: 0	Gap Con	pensatio	n(Unit: 0. OH: 0	imm)
Device Info						vw: 0			VH: 0	
Version: Hostnam	ie ID:	Lar	Status:	MAC	Address:	Wall Size	and Positi Monitor C	on Layou ount:	ıt 5	
rx	Casting Mode			RX		Horizont	al Monito	Count:	5	
IP Hostname ID	Multicast	0	Unicast	IP Multicast IP OSI	Multicast IP OSI	0_0	0_1	0_2	0_3	0_4
	Multicest IP:		•			1_0	1_1	1_2	1,3	1_4
	IP Mode					2_0	2_1	2_2	2,3	2_4
	O Auto IP O DHCP O Static		3_0	3_1	3_2	3_3	3_4			
		_				4_0	4_1	4_2	4,3	4_4
	Subnet Mask:					Preference Stretch	e Type:		FitIn	-
	Default Gateway:					Clockwis	e Rotate		0	•

6.2.2 Group ID

Change the Group ID to view the same or different source.

etwork Scan	Linera		Factory Default	Reboot	Anty	Video Wall Bezel and	Gap Com	pensation	(Unit: 0.)	imm)
						OW: 0			OH: 0	
					3	vw: 0			VH: 0	
Device Info Version:	Hostname	E ID:	Lan Status:	мас	Address:	Wall Size	and Positi Monitor C	on Layout ount:	5	
тх		Casting Mode		RX		Horizont	al Monitor	Count:	5	-
IP Hostr	name ID	C Multicast	O Unicast	Ib	Multicast IP OSI	0_0	0_1	0_2	0_3	0_4
		Multicast IP:	225.0.100.0			1_0	1_1	1_2	1.3	1_4
		IP Mode	225.0.100.1 225.0.100.2 225.0.100.3			2_0	2_1	2_2	2,3	2.4
		🗇 Auto IP	225.0.100.4 225.0.100.5 225.0.100.6 tab:			3_0	3_1	3_2	3_3	3_4
			225.0.100.7			4_0	4_1	4_2	4,3	4.4
		IP Address: Subnet Mask:	225.0.100.9 225.0.100.10 225.0.100.11 225.0.100.12	2		Preference Stretch	e Type:		Fit In	-
		Default Gateway:	225.0.100.13 225.0.100.14 225.0.100.15	te -		Clockwis	e Rotate:		0	•

6.2.3 Video Wall

1. Set the transmitter and Receiver with same multicast IP.

2. Change the "Vertical Monitor Count" and "Horizontal Monitor Count" the create video wall.

For example, if you need create a 2x2 video wall, please set the "Vertical Monitor Count" and "Horizontal Monitor Count" as "2".

scan Upg	Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0, Imm) OW: 0 OH: 0
Device Info Hostname ID: 01	Lan Status: s_attaching	MAC Address: 0240F5C5E505	Wat Size and Position Layout Vertical Monitor Count: 2 +
тх	Casting Mode	RX	Horizontal Monitor Count:
59 Hostname ID 169.254.8.52 01	Multicast Multicast Multicast P: 225.0.100.1 P Mode Auto IP OHCP Static	(P Multicest (P OS)	60 0.1 1.0 1.1
	IP Address: 169 . 254 . 8 . 52 Subnet Mask: 255 . 255 . 0 . 0		Preference Stretch Type: Fit In • Clockwise Rotate: 0 •
	Default Gateway: 169 . 254 . 0 . 1		

3. Click "Show OSD".

etwork			Video Wall Bezel and Gap Compensation(Unit: 0.1mm)
scan upg	Pactory Detault	Rieboot Appry	0W: 0 0H: 0
Denice Info			WW: 0 WH: 0
Version: Hostna	me ID: Lan Status:	MAC Address:	Wall Size and Position Layout Vertical Monitor Count:
тх	Casting Mode	RX	Horizontal Monitor Count: 2
IP Hosthame ID	Multicast Multicast Multicast P:	IP Mulliceart IP OSC	1.0 0.1 1.1 0.1
	P Address:	aoc	Preference Stratch Yung: Fit In •
	Default Gateway:		Clockwise Rotate:

4. Select the RX and drag it to the corresponding position according to OSD shows on the TVs.

twork Scan Upg	rade Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0. Imm)
			OW: 0 OH: 0
			VW: 0 Witi 0
Device Info Hostname ID: 00	Lan Status: s_attaching	MAC Address: 0240FSCSE505	Wall Size and Position Layout Vertical Monitor Count: 2
тх	Casting Mode	RX	Horizontal Monitor Count: 2
IP Hostname ID	Multicast	IP Multicast IP OS	
169.254.8.52 00		169.254.5.9 225.0.100.0 0	0_0 0_1
	Multicast IP: 225.0.100.0 *	169.254.5.16 225.0.100.1 1	4.4
		169.254.5.25 225.0.100.2 2	
	IP Mode	10.201.3.11 EESO 100.7 3	
	Auto IP O DHCP O Static		
	IP Address: 169 , 254 , 8 , 52		Preference
	Subret Mark: 255 . 255 . 0 . 0		Stretch Type: Pit In •
			Clockwise Rotate: 0 -
	Default Gateway: 169 . 254 . 0 . 1		100 million (100 m

6.3 IP Configuration

The 4K HDMI & USB Over IP Extender can configure via LAN in the same subnet.

1. Assign a LAN IP address to the computer in the same subnet. The IP address default of the Transmitter and Receiver is B class Networking: 169.254.xxx.xxx.

ou can get IP settings assigned is capability. Otherwise, you nee e appropriate IP settings. O Obtain an IP address autom	automatically if your network supports ad to ask your network administrator for atically
Use the following IP add	dress:
JP address:	169.254.0.221
S <u>u</u> bnet mask:	255.255.0.0
Default gateway:	
Obtain DNS server address	automatically
Use the following DNS set	erver addresses:
Preferred DNS server:	
Alternate DNS server:	

Figure 1. Internet Protocol (TCP/IP) Properties

2. Connect the TX and RX with the Ethernet switch, Then connect the PC with the Ethernet switch.

Because this unit support DHCP, Different unit with different IP address of the factory reset, so The first thing we need know the IP address of each unit.

There is two way to get the IP address

1) Via "Node List"

Open the "Node List "in the "Tool" file, Press twice the "Node_list.bat" to enter the dialog box



Then we can see all the IP address of both the TX and RX show as bellow black dialog box.



Remark: If the IP address with "Client", It's the IP address of the RX If the IP address with "Gateway", It's the IP address the TX.

2) The second way.

Connect all devices with proper cables except video source, please refer to Figure 2



Figure 2. Demonstrate the 4K HDMI & USB Over IP Extender

3) After activation, the device information including the Transmitter and Receiver IP address will be shown in the lower right corner. Remember the Transmitter and Receiver IP address on monitor screen and then plug HDMI video source cable into Transmitter.



Figure 3. Device IP Indication

3. The administrator can input Transmitter or Receiver IP address into address bar of web browser (Recommend the Google Chrome) to enter the Extender Web UI.

If link success, administrator will see the Web UI as shown in Figure 4.



Figure4. Web User Interface

7. WEB USER INTERFACE CONFIGURATION

7.1 System

The relevant information of the connected extender and setting

7.1.1 [Version Information]

Indicating the firmware version and relevant information of the devices



7.1.2 [Update Firmware]

To update the firmware of the connected extender, please click on the [Select File] to select the firmware and click on [Upload] to upload the firmware and update accordingly.



Transmitter Firmware Update: please select [webfwh.bin] to update
 Receiver Firmware Update: please select [webfwc.bin] to update

ftp-shere (NAS-Partilink (NAS I	allc.bin		2015/11/10 下午 2015/11/10 下午	BIN 檔案
◆ 下載 ■ 影片 ■ のいの	🗋 webfwc.bin		2015/11/10下午…	BIN
Data (D:)				
◎ DVD RW 磁碟機 (E:) PHOTOSLI	<			>
檔案名稱(N): webfw	vc.bin	~ 所有檔案		~
		開啟(0)	▶ 取消	

It takes time to update the firmware. During the process of update, the Web user interface shows the status as below diagram. The extender system will reboot automatically after updating firmware. If it doesn't reboot automatically, please reboot to apply the new firmware manually.

Firmware Update Progress:	
firmware file name: webfwc.bin	
firmware file size: 8531172 bytes	
Decompressing firmware	
Platform matched.	
Start programming flash	
programming bootloader	
programming kernel	

firmware file name: webfwc.bin		
firmware file size: 8531172 bytes		
Decompressing firmware		
Platform matched.		
Start programming flash		
programming bootloader		
programming kernel		
programming rootfs		
programming rootfs patch		
programming logo		
programming parameters		
Programming completed		

7.1.3 [Utilities]

There are some functions

- Factory Default: Click on to return to the factory default when necessary
- **Reboot:** Click on to reboot the extender system
- Console API Command: Input Linux command for advanced setting

Version Information: Update Firmware: Utilities:	
Update Firmware: Utilities:	
Utilities:	
Commands	
Factory Default Reboot	
Console API Command	
	Apply
Output	
L	
Statistics:	

7.1.4 [Statistics]

Indicating the extender linking and working status

Ver	sion Information:
Upd	late Firmware:
Util	ities:
Sta	tistics:
	State Machine
5	State: s_search
	Aletwork
	NELWOIR
I	D (Host Name): 82CA8D853D73
I	P Address: 169.254.6.167
5	Subnet Mask: 255.255.0.0
0	Default Gateway: 169.254.0.254
r	MAC Address: 82CA8D853D73
C	Casting Mode: Unicast Mode
L	ink Status: on
L	ink Mode: 1G
,	Video
-	oral Video Output+
¢	
1	/ideo Timing Information:
-	:iming=[34] 640x480p@60Hz H− V−
t	type=RGB
c	color depth=0

7.2 Video Wall

To set up the video wall application

7.2.1 [Basic Setup]

ow:		ow
1		· · · · · · · · · · · · · · · · · · ·
OH:		
1		1
vw:		vw i i i
1		+
VH:		<u> </u>
1		UNIT: 0.1mm
Row Position: 0 Column Position:	•	
		UNIT PANA
Preferences		
Stretch Type:	Fit In	-
Clockwise Rotate:	0	•
pply To: "This" devic	e connected by y	our browser
This	 Apply 	

• Bezel and Gap Compensation:

Dimension of the screen (inside and outside width and height)

OW: outside width **OH:** outside height

VW: viewable width VH: viewable height

Please NOTE:

1) The viewable width must be less than the outside width, and the viewable height must be less than the outside height.

2) If administrator doesn't need this, just set all values to 0.

3) The unit is 0.1mm and the value MUST be integer.



• Wall Size and Position Layout:

Select number of vertical and/ or horizontal monitors, row position and column position. Vertical monitor number 1~8, horizontal monitor number 1~16







Preferences: Select the video fit in the screen or stretch out and the rotate angle

Treferences				
	Caretoria			
Stretch Type:	Fit In			
the second second second	Fit In			
Clockwise Rotate:	Stretch Out			

Stretch Type:	Fit In	•	
Clockwise Rotate:	0	-	
	0		
	180		

• Apply To:

1) All: Configure all Transmitter and Receiver in the same Group IP.

2) This (Local): The IP you input into address bar of web browser.

3) Hosts or Clients: select which Transmitter or Receiver you want to configure.

Preferences		
Stretch Type:	Fit In	\checkmark
Clockwise Rotate:	0	

Apply To: "All" device(s) in the list

All	Apply
This	
Hosts:	
0000:169.254.10.103	
Clients:	
0:169.254.4.78	

• Show OSD:

Check this box to output each receiver's specific number to the connected monitor

Stretch Type:	Fit In	•	
Clockwise Rotate:	0	•	
Apply To: "This" devi	ce connected b	y your browser	
This	 Appl 	ly	

7.2.2 [Advance Setup]

vanced Setup:	
Step 1: Choose Control Target	
and a subside control torget	
and internal and internal	
Show OSD	
Step 2: Control Options	
Reset to Basic Setup:	
	Reset
Stretch Type-	
Fit In	Apply
	ALL SALA
Clockwise Rotate:	
0 •	Apply
Screen Layout (Row x Column):	
1 • X 1 •	Apply
Row Position:	Apply
	- Constants
Column Position:	
0 •	Apply
Horizontal Shift:	
Laft Highlic 0	Apply
Vertical Shift:	Concerning and
	sebbay
Horizontal Scale Up (N pixels/column_count):	
0	Apply
Vertical Scale Up (N pixels/row_count):	
0	Apply
Console API Command:	10

Before enter "Advanced Setup", please complete the "Basic Setup" as follows:

Step1: In "Basic Setup", select Vertical and Horizontal Monitor Count. For example Vertical Monitor Count = 3, Horizontal Monitor Count = 5



Sept2: In "Advanced Setup", choose the target of the video wall to control

-		-						
	RO		This	r0c1	r0c2	r0c3	r0c4	
•	R1		r1c0	r1c1	r1c2	r1c3	r1c4	
	R2		r2c0	r2c1	r2c2	r2c3	r2c4	

If user make incorrect operations, press "Reset" in Reset to Basic Setup function.



Setup the video output to "Fit In' or "Stretch Out" mode in the screen

Fit In	•	Apply
Fit In		
Stretch Out		

Setup the rotation angle of the video output

0	-	Apply
0		
180		
270		

Set up the number of vertical and horizontal monitor based on the video wall layout. Vertical number 1~8 and horizontal number 1~16.

Setup the row position of monitor, number from 0 to the total number of vertical monitor.

3	-	х	5	•	Apply
1			ι		
2	_				
4					
5					
6					

Setup the column position of monitor, number from 0 to the total number of horizontal monitor.

0	-	Apply
0		
1		
2		
3		
4		
5		
6		

0	-	Apply
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Setup the video position shift and video enlarge.

- Horizontal Shift: Setup the video horizontal shift, Left or Right
- Vertical Shift: Setup the video vertical shift, Up or Down
- Horizontal Scale Up: Setup the video horizontal scale up
- Vertical Shift Scale Up: Setup the video vertical shift scale up.

Vertical Shi	ít:	
Up D	0 O	Apply
Horizontal	cale Up (N pixels/column_count):	
0		Apply

• Consol API Command: Input Linux command to do advanced setup.

	Apply
	- Philod

7.3 Network: Update the network setup of the extender system

-	- AND					
IP Se	etup					
	IP Mode:	Auto IP	DHCP	Static		
	IP Address:	169.254.6.16	7			
	Subnet Mask:	255.255.0.0				
Defa	ult Gateway:	169.254.0.25	4			
Casti	ng Mode					
Mu	Iticast U	nicast	de per casting	mode (recom	manded)	
- /1	v select USD		the per casting	invas (recom	indialed /	

7.3.1 [IP Setup]

• Auto IP: use automatically Extender assign IP system for example: 169.254.xxx.xxx.

IP Mode:	Auto IP	DHCP	Static	
IP Address:	169.254.6.167			
Subnet Mask:	255.255.0.0			
Default Gateway:	169.254.0.254			

 DHCP: use the DHCP of the external device such as the IP sharer to assign IP.

IP Address: (From DHCP Server) Subnet Mask: (From DHCP Server)	IP Mode:	Auto IP	DHCP	Static	
Subnet Mask: (From DHCP Server)	IP Address:	(From DHCP Se	erver)		
	Subnet Mask:	(From DHCP Se	erver)		
fault Gateway: (From DHCP Server)	Default Gateway:	(From DHCP Se	erver)		

• Static: use the static IP to assign manually.

IP Mode:	Auto IP	DHCP	Static	
IP Address:	192.168.0.50			
Subnet Mask:	255.255.255.0			
Default Gateway:	192.168.0.1			

7.3.2 [Casting Mode]

Select the broadcast mode of the extender application

- Multicast: point to multiple points or multiple point to multiple points broadcast
- Unicast: point to point broadcast

Multiapat	Unicost				
Pluticast	Unicast				
Auto select	USB operation r	mode per casting	<mark>j mode (</mark> recomn	nanded)	

7.4 Functions:

Setup the video output and USB extension mode for Transmitter

Video	o over IP
₹ Ena	ble Video over 19
Ena	ble Video Wall
Cop	y EDID from this Video Output (Default disabled under multicast mode)
Scaler	Output Mode: Pass-Through +
Timeo 🖸 Turi	ut for Detecting Video Lost: 10 seconds + n off screen on video lost
	Apply
USB (over IP
Z Ena	ble USB over IP
Opera	tion Mode:
0	Auto select mode (Recommanded, choose per network casting mode)
0	Active on time (unmeast network's default mode) Active per request (Multicast network's default mode)
Comp	atibility Mode:
8	K/M over IP (Uncheck when mouse/keyboard/touch panel not working as expected)

Setup the video output and USB extension mode for Receiver

Video over IP	istum	Wideo Wall	Network	Functions	
	Video	over IP			
	2 Enal	ble Video ove	r IP		
Maximum Bit Rate: Best Effort • Maximum Frame Rate: Capture up to 100% of frames: Maximum Frame Rate: Capture up to 100% of frames: Maximum Frame Rate: Capture up to 100% of frames: Maximum Frame Rate: Capture up to 100% of frames: Maximum Rate: Maximum Rate: Capture up to 100% of frames: Maximum Rate: Capture up to 100% of frames: Capture up to 100% of frames: Maximum Rate: Capture up to 100% of frames: Capture up	2 Enal	ble Video Wal			
Maximum Frane Rate: Capture up to 100% of frames USB over IP Coperation Node: Active per request (Multicast network's default mode) Active per request (Multicast network's default mode) Compatibility Mode: Mose not responding well (Check when Ustit moses responding is slew and queer) K/M over IP (Uncheck when mose/keyboard/fouch panel not working sector	Maxim	um Bit Rate:	Best Effort		3
	Maxim	um Frame Ra	te: Capture	up to 100%	of frames
USB over IP					
USB over IP					Annels
USB over IP					Abbit
Enable USB over IP Operation Mode: Active of the (Universe intervent's default mode) Active per request (Multicast network's default mode) Active per request (Multicast network's default mode) Compatibility Mode: Mose not responding well (Check when USB moses responding is slow and queer) K/M over IP (Uncheck when mose/keyboard/fouch panel not working sectored)	USB o	over IP			
Operation Mode: Active of the Commanded, choose per network casting mode) Active per request (Multicast network's default mode) Compatibility Mode: Mosse not responding well (Check when USB mosse responding is slew and queer) K/M over IP (Uncheck when mouse/keyboard/funch panel not working as specied	i Enal	ble USB over	IP		
Addus select mode (Incommonled, choese per network casting mode) Addus and init (unicat setwork's default mode) Active per request (Multicast network's default mode) Compatibility Mode: Mosse not responding well (Check when USB mouse responding is slew and queer) K/M over IP (Uncheck when mouse/keyboard/forch panel not working and queer)	Operat	tion Mode:			
Active on link (Unicast network's default mode) Active per request (Multicast network's default mode) Compatibility Mode: Mose net responding well (Check when USII moses responding is sleve and quare? K/N over IP (Uncheck when mouse/keyboard/touch panel net working as expected)	0.4	Auto select m	ode (Recons	manded, ch	oese per network castlog mode)
Active per request (statutistic increases status mode) Compatibility Mode: Messe not responding well (Check when USB means responding is slaw and queer) K/N over IP (Uncheck when mouse/keyboard/fouch panel not worklag as expected	- 24	Active on link	(Unicast no	twork's def	ault mode)
Compatibility Mode: Descent Responding well (Check when USB means responding is slaw and queer) K/M over IP (Uncheck when mouse/keyboard/fouch panel not working as spectra		Active per req	aest (maine	case menoror	K & Getallit mode)
Mosse not responding well (Check when USB mome responding is slow and queer) K/M over IP (Uncheck when mouse/keyboard/touch panel not working as expected	Compa	tibility Mode:			
% K/M over IP (Uncheck when mouse/keyboard/touch panel not working as expected	- 0.	Mouse not res	ponding we	II (Check w	hen USB mouse responding is slow and queer)
	81	K/M over IP (Uncheck wh	en mouse/	keyboard/touch panel not working as expected

7.4.1 [Video over IP]: Setup the video output mode

- Enable Video over IP: Check to enable video extension over IP
- Enable Video Wall: Check to enable the video extension for building up video wall
- Enable EDID Copy: This function is limited to copy one of the receivers.
- Scaler Output Mode: Select the required scalar output mode or select "customize" and input 8 Hex values for more video output resolution and refresh rate selections.
- 1) 8000004: HD 720p60
- 2) 81000061: WXGA 1366x768@60
- 3) 81000040: WXGA+ 1440x900@60
- 4) 81000051: WUXGA 1920x1200@60
- 5) 8100003C: SXGA+ 1400x1050@60
- Timeout for Detecting Video Lost: Setup the time of stop the video storage when detecting video lost to transmit

Customize Scalar Output Mode for Transmitter

ystem	Vidge Will	Network	Functions				
Video	over IP						
≅ Enal	ble Video over	ІР					
🗹 Enal	ble Video Wall						
Cop	y EDID from t	nis Video Out	put (Default	disablec	l under mult	icast mode)
Scaler	Output Mode:	Pass-Through	•)			
Timeo Turr	ut for Detectin 1 off screen or	Full HD 1080 Full HD 1080 Ultra HD 216 Ultra HD 216 Customize	p60 p50 0p30 0p25		•		
							Apply
USB o	over IP						
🖲 Enal	ble USB over I	р					
Operat	tion Mode:						
0,	Auto select mo Active on link Active per requ	de (Recomm (Unicast netw lest (Multica	anded, choo vork's defau st network's	se per no lt mode) default	etwork casti mode)	ng mode)	
	ter te ber ted	and formation	a decision a s				

Customize Scalar Output Mode for Receiver

🖉 Enable Video over	IP	
🖉 Enable Video Wall		
Copy EDID from th	is Video Output (Default disabled under multic	ast mode)
Scaler Output Mode:	Pass-Through 🔹	
	Pass-Through Full HD 1080p60	
	Full HD 1080p50 Ultra HD 2160p30 Ultra HD 2160p30	
Timeout for Detectin	ordia no zroopzo	
Timeout for Detectin Turn off screen on	Customize	

• Timeout for Detecting Video Lost

Video over IP		
€ Enable Video over IP		
🖲 Enable Video Wall		
Scaler Output Mode: Pass-Through		
Timeout for Detecting Video Lost:	10 seconds	
Turn off screen on video lost	3 seconds 5 seconds	
	20 seconds 30 seconds 60 seconds Never Timeout	Apply

7.4.2 [USB over IP]: Setup the USB extension mode

- Enable USB over IP: Check to enable USB extension mode over IP
- Operation Mode: Including "auto select mode", "active on line" and

"active per request" modes for option.

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• **Compatibility Mode:** Check to enable USB keyboard, USB mouse transmission mode.



7.4.3 [Serial over IP]: set up the serial extension mode

- Select Type 2 as operation mode
- Set up the baud rate for Type 2.

Serial Over IP

	IF IP			
Operation Mode:				
Type 1 (Need	extra control in	nstruction. For	advanced usag	e.)
Type 2 (Recor	nmanded. Dum	b redirection.)		
Type 1 guest	mode			
• Type 2 guest	mode			
Baudrate Setting for	r Type 2:			
Baudrate:	115200	•		
Data bits:	8	•		
Parity:	None	•		
Stop bits:	1			

Broadcast Mode Setting

Multicast	Unicast				
Auto select	USB operation mode	por carting mod	la (recomma	underd)	
Auto select	USB operation mode [per casting mod	e (recomma	indea)	
				_	
					Apply

MODEL # BL-EXT-IP-264-4KVW-RX - Operating Instructions 8. BROADCAST CONFIGURATION SETTING

There are some examples to show the setup for unicast, multicast, matrix and video wall. Broadcast setting including unicast and multicast

8.1 Multicast:

To enable the USB interactive devices controlled by turns, please check "Auto select USB operation mode per casting mode"



8.2 Unicast:



8.3 Matrix:

Install multiple transmitters and setting ID of these transmitters individually, edit the group of transmitters and receivers. The correspondent receivers will output the video from the transmitter belonged to the same group ID.





8.4 Video wall:

A 3X5 (row x column) video wall setting example here for reference. In multicast and matrix application mode, access the Web user interface of correspondent receiver to setup.

8.4.1 (Basic Setup)

Please refer to "Section 6.2.1 Basic setup" and follow the steps as below.

Step1: Set up the vertical monitor count to "3"

Step 2: Set up the horizontal monitor count to "5"

Step 3: Set up the row position of the monitor to 0

Step 4: Set up the column of the monitor to 0

Step 5: Apply the setting to the extender system

Administrator can complete each Extender position setting after follow 5 steps in above. And then follow the above steps to set the other extenders to the rest of row and column positions from 0x1, 0x2, 0x3 to 3x5

After the basic setup of the video wall, please access the advanced setup to proceed other detailed setting of the video output.

8.4.2 Advanced Setup

Select the monitor you want to control. The one you select will show "This" in green in video wall matrix layout. Take below diagram for example, the monitor we select to control here is the monitor in the upper left corner.

•		-					
	RO		This	r0c1	r0c2	r0c3	r0c4
	R1		r1c0	rici	r1c2	r1c3	r104
	R2		1200	r2c1	1202	r2c3	1264

Example for the video wall control

Here's the diagram of the actual video wall layout showing the selected monitor in the upper left corner with green outline.



Returned to the previous setup of video wall quickly when incorrect operation was input

	Reset to Basic Setup:	
8-12-1		Reset

Reset

Adjust the horizontal position of the video output, "Left/Right Shift", the selected monitor to adjust is shown with green outline.



Adjust the vertical position of the video output, "Up/Down Shift", the selected monitor to adjust is shown with green outline.



Horizontal Scale Up: To scale up the video output horizontally as the monitor shown with green outline



Vertical Scale Up: To scale up the video output vertically as the monitor shown with green outline



If your product does not work properly because of a defect in materials or workmanship, our Company (referred to as "the warrantor") will, for the length of the period indicated as below, (Parts(2)Year, Labor(90) Days) which starts with the date of original purchase ("Limited Warranty period"), at its option either(a) repair your product with new or refurbished parts, or (b) replace it with a new of a refurbished product. The decision to repair or replace will be made by the warrantor.

During the "Labor" Limited Warranty period there will be no charge for labor.

During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

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When shipping the unit carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a day time phone and/or email address where you can be reached.

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