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ST-IPC6FOUSB4K-POE

4K 10.2Gbps HDMI USB KVM Extender Over IP via CATx Cable With POE & Video Wall Support

Product Manual



ST-IPC6FOUSB4K-R-POE View of Remote Only, Front and Rear

Table of Contents

1.	Introduct	ion3
2.	Features	
3.	Package	Contents
4.	Cables A	vailable4
5.	Hardware	e Description5
	5.1 Transm	nitter5
	5.2 Receiv	er6
	5.3 Descrip	otions Buttons7
6.	Installatio	on11
	6.1 Device	Connection11
	6.2 PC To	ool Instructions
	6.2.1	Multicast16
	6.2.2	Group ID16
	6.2.3	Video Wall
	6.3 IP Co	nfiguration18
7.	Web Use	r Interface Configuration21
	7.1 Syste	m
	7.1.1	Version Information21
	7.1.2	Update Firmware22
	7.1.3	Utilities
	7.1.4	Statistics24
	7.2 Video V	Vall
	7.2.1	Basic Setup25
	7.2.2	Advanced Setup
	7.3 Networ	k
	7.3.1	IP Setup
	7.3.2	Casting Mode
	7.4 Functio	ns35
	7.4.1	IP Setup
	7.4.2	Casting Mode
	7.4.3	Serial over IP
8.	Broadcas	st Configuration Example
	8.1 Multica	st
	8.2 Unicas	t
	8.3 Matrix.	
	8.4 Video \	Vall
	8.4.1	Basic Setup40
	8.4.2	Advanced Setup41
Sp	ecifications	
Ŵ	arranty	

1. INTRODUCTION

The XTENDEX® 4K HDMI USB KVM Over IP Extender provides remote KVM (USB keyboard, USB mouse, and 4Kx2K HDMI monitor) access to a USB computer up to 394 feet (120 meters) over a Gigabit network using a single CAT5e/6/6a/7 cable. The extender consists of the ST-IPC6FOUSB4K-L-POE local unit that connects to a computer and the ST-IPC6FOUSB4K-R-POE remote unit that connects to an HDMI monitor, USB keyboard, and USB mouse.

The local and remote units can be connected together for a Point-to-Point connection via CATx cable, or a Point-to-Many or Many-to-Many connection via a Gigabit network switch.

2. Features

- Supports Ultra-HD 4Kx2K resolutions to 3840x2160 @30Hz, HDTV resolutions to 1080p, and up to 1920x1200 (WUXGA).
- Cascade network switches to extend the length long distances.
- HDMI features supported:
 - HDMI 1.4
 - o RGB, YCbCr 4:4:4, YCbCr 4:2:2, and YCbCr 4:2:0
 - LPCM 5.1/7.1, Dolby Digital, and DTS
 - Bandwidth up to 340 MHz (10.2 Gbps)
- HDCP 1.4 compliant.
- Two USB 2.0 ports for keyboard, mouse, flash drive, or touchscreen display.
 - Keyboard and mouse are hot-pluggable.
- Power over Ethernet (PoE) power supply not required at the local or remote unit when used with a switch that supports PoE.
- Supports video wall installations from 1x2 to 8x16 screens.
 - Displays can be rotated 90, 180 and 270°.
- Plug-and-Play installation allows receivers to find the transmitter automatically on the same network. (Network configuration may be required if using a managed network switch.)
- Bi-directional IR control from input and output locations.
- Manage transmitter/receiver connections and video wall configuration with built-in software or DIP switches.
- Supports full-duplex RS232 up to 115200 baud.
- Customizable EDID table.
- Easily expandable add receivers as you add control stations.
- Mounting brackets included for easy surface/wall mounting.

3. PACKAGE CONTENTS

Main Unit. HDMI Extender (Transmitter and/or Receiver)

2x Power adapter DC 5V (1 per box)

2x IR TX cables, 2x IR RX cables (1 each per box)

2x Screw terminal plugs for RS232 cable termination (1 per box)

8x screws (4 per box)

4x detachable mounting ears (2 per box)

URL slip with path to this Product Manual

4. CABLES AVAILABLE

- Interface cables between the computer/display and the transmitter/receiver are required for proper operation.
 - Supports cable lengths to 20 feet for 4K resolutions and lengths to 50 feet for 1080p@60Hz using passive HDMI cables.
- Use HD-xx-MM cable to connect an HDMI source or display (not included).
- Use HD-ACT-xx-MM 4K HDMI Active Cables to connect an HDMI source or display up to 100 feet (not included).
- Use DP-HD-xx-MM cables to connect a DisplayPort computer or display up to 15 feet (not included).
- Use USB3C-HD4K-xx-MM to connect a 4K@30Hz computer with USB Type C connector up to 10 feet (not included).
- Use DVI-HD-xM-MM to connect a DVI computer up to 5 meters (not included).
 Supports resolutions to 1080p.
- Use CAT6/6a/7 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).
- One 5.92 ft (1.8 m) male USB Type A to male USB Type B cable included with the transmitter.

5. HARDWARE DESCRIPTION

5.1 Transmitter



Use 4bits DIP switch to select the ID for up to 16 groups (such as 0001, 0010, 0101 etc)

5.2 Receiver



A. Green LED: Blinks when data is being transferred between the transmitter and receiver.

B. Yellow LED: Illuminates solid to indicate a connection between the transmitter and receiver.

2 LED not used in this model.

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

4 Please refer to 5.3.

4 bits DIP Switch:

Use 4bits DIP switch to select the ID for up to 16 groups (such as 0001, 0010, 0101 etc)

5.3 Button Descriptions:

(Host: Transmitter; Client: Receiver)

Button State for Unicast Mode: HDMI Extender:

* Item will be described in Descriptions on page 8

Unicast Digital	Button State			
	Transmitter		Receiver	
	Button One :	Button Two :	Button One :	Button Two :
Momentary Press	Remote/Loopback*	Toggle Video Mode/ Graphic Mode*	Link on : Link Link off : Unlink	Toggle Video Mode/ Graphic Mode*
Long Press(3 sec)	Snoop (on/off)*	Anti-Dither (1 / 2 / off)*	N/A	Anti-Dither (1 / 2 / off)*
Short Press when Ethernet Link is Off	Not used	Not used	Not used	Not used
Long Press when Ethernet Link is Off	Not used	Ethernet Jumbo Frame (on/off)*	Not used	Ethernet Jumbo Frame (on/off)*
Long Press on Boot (Press until Red LED starts Blinking)	Engineering Mode*	N/A	Engineering Mode*	N/A
(Press until both Red LED and Green LED start Blinking)	Engineering Mode and Reset to default*	N/A	Engineering Mode and Reset to default*	N/A

Descriptions:

Feature /Button Feature	Descriptions
Remote/Loopback	When System is all setup, a short press of this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side, a long press of this button
	will cause 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 saved to flash, and remembered after rebooting.
	Video Mode: The firmware will automatically trade-off between bandwidth and video quality
	to ensure a smooth video playing experience.
	Graphic Mode: Firmware 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 look 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.
	If the source content does not generate dithering output and this feature is turn on. It will create
	a blocking effect because the Video Engine is unable to detect pixel changes. User can
	avoid this issue by switching 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:
	Host: webfwh.bin
	Client: webfwc.bin
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 the unit reboots, a new random MAC will be generated.
Ethernet Jumbo Frame	1. Enable/Disable Ethernet Jumbo Frame.
	2. If link LED is solid then Jumbo is enabled. If link LED is blinking then Jumbo is disabled.

Button State for Multicast Mode: HDMI Extender:

* Item will be described in Descriptions on page 10

Multicast Digital	Button State			
	Transmitter		Receiver	
	Button One:	Button Two:	Button One:	Button Two:
Momentary 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	Not used	Not used	Not used	Not used
Ethernet Link is Off				
Long Press when	Not used	Ethernet Jumbo Frame	Not used	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 is 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 Green			Reset to default*	
LED are Blinking)				

Descriptions:

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6. INSTALLATION

6.1 Device Connection

1. Verify the power supply is unplugged.

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

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

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

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

- 6. Power ON the Transmitter, Receiver and all the connected devices (in no particular order).
- 7. 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: See section 6.3 for setup. If using a network switch, the HDMI extender and computer must be in the same domain. Step 2: Download the "st-ipc6fousb4k-poe-control.zip" from the NTI website (https://www.networktechinc.com/4k-hdmi-usb-poe-extender.html#tab-4) and unzip it to your computer. Locate "4KOverIP2V5.exe" and open it.

Step 3: Click "Scan".

steenk Scan	Line	edu _	Pactory Defi	ut		Rabsot	Acaty	Video Wall Bazel en: DWs_0	Gep Cer	operes to	on a)
Device Info Version:	Hostner	n II:	La	Skataso		MAC A	ádrana:	Wh C Nol Size Aertical	and Prest Menitor C	ion Lavieu iount:	ver 1 c	-,
DX .		casana Mode			- 20			Hericon	tel Months	Count	5	*
2	Hostname ID	Channel Prede Chao P	0	()HIC357	tic	7	PAURONE D* ODS	0.9 1.0 2.9 2.9	0_1 1_1 2_1 2_1 4_1	12 12 12 12	t c c c c	2,4 2,4 2,4 4,4
		IP Address Subnet Mado	•	•				Proference Stretch Cladove	an Type: se Rotate		Pitan 0	•

twork			Video Wall Bezel and Gap Compensation(Unit: 0, 1mm)
Scan Upg	Factory Default	Reboot Apply	OW: 0 OH: 0 VW: 0 VH: 0
Device Info	Lan Status: s attaching	MAC Address: 024DESCSES05	Wall Size and Position Layout
Hospitalie 15. 00		Hine Address, 62 Ibr Sedesda	Vertical Monitor Count: 5
rx	Casting Mode	RX	Horizontal Monitor Count: 5
IP Hostname ID	Multicast O Unicast	IP Multicast IP OSI	0_0 0_1 0_2 0_3 0_4
	Channel •	169.254.5.9 225.0.100.0 0	
	IP Mode		2_0 2_1 2_2 2_3 2_4
	Auto IP O DHCP O Static		3_0 3_1 3_2 3_3 3_4
	IP Address: 169 . 254 . 8 . 52		4_0 4_1 4_2 4_3 4_4
	Subnet Mask: 255 . 255 . 0 . 0		Preference Stretch Type: Fit In 🔻
			Clockwise Rotate:
4 III	Default Gateway: 169 . 254 . 0 . 1	2 III b	Ehan OSD

Step 4: Choose the TX or RX name (one at a time).

Step 5: If desired, change the Hostname ID, Casting Mode and/or IP Mode on the graphic tool interface.

Step 6: Once changes are made, click "Apply".

twork			Video Wall Bezel and Gap Compensation(Unit: 0, 1mm)
Scan Upg	rade Factory Default	Reboot Apply	
			OW: 0 OH: 0
			VW: 0 VH: 0
Device Info			
Hostname ID: 01	Lan Status: s_attaching	MAC Address: 024DF5C5E505	Wall Size and Position Layout
	(Vertical Monitor Count: 5
тх	Casting Mode	nıp	Horizontal Monitor Count: 5
IP Hostname ID	Multicast O Unic	Multicast IP OSI	
169.254.8.52 01		Apply success	
	225.0.100.1		1_0 1_1 1_2 1_3 1_4
	IP Mode		
	Auto IP DHCP Static		3_0 3_1 3_2 3_3 3_4
	0.00		40 41 42 43 44
	IP Address: 169 . 254 . 8 . 52	2	
			Preference
	Subnet Mask: 255 . 255 . 0 . 0		Stretch Type: Ht In
	Default Gateway: 169 254 0 1		Clockwise Rotate:
4 III. F	bendare dateway. 105 . 251 . 0 . 1	4 III >	Show OSD

6.2.1 Multicast

Click "Multicast" on the graphic tool interface if you are configuring for Oneto-Many or Many-to-Many application.

4K Over IP Control Center V1.8			
Network Scan Upgra	ide Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0. Imm) OW: 0 OH: 0 VW: 0 VH: 0
Device Info Version: Hostname	e ID: Lan Status:	MAC Address:	Wall Size and Position Layout Vertical Monitor Count: 5
TX IP Hostname ID	Casting Mode Multicast Unicast TP Mode Auto IP Auto IP DHCP Static IP Address:	RX IP Multicast IP OSI	Horizontal Monitor Count: 5 0.0 0_1 0_2 0_3 0_4 1.0 1_1 1_2 1_3 1_4 2.0 2_1 2_2 2_3 2_4 3_0 3_1 3_2 3_3 3_4 4_0 4_1 4_2 4_3 4_4 Preference Fit In< © Clockwise Rotate: 0 \checkmark Show OSD Sbow Sbow Sbow

6.2.2 Channel

Change the Channel number to be the same for the Transmitter and all Receivers to view the same source. Each Transmitter will be assigned a different Channel number.

letwork Scan	Upgrade	Factory Default		Reboot	Apply	Video Wall Bezel and Gap Compensation(Unit: 0. 1mm) OW: 1 OH: 1
Device Info						VW: 1 VH: 1
Version:	Hostname ID:	Lan Stat	us:	MAC Address:		Wall Size and Position Layout
TX IP Address Multicast	Casting Mode Channe IP Mode Multi Chann IP Mode Muto IP IP Address: Subnet Mask:	icast ● Unica nel: 0003 0000 0002 0004 0004 0005 0007 ● D+ 0008 0009 0010 0011 0012 0013 0015 0015 0015 0017 0015	st Static	IX IP Address Multicast	Channel OS	Horizontal Monitor Count: 5 • • Show OSD Quick Video Wall: 5 × 5 0.0 0.1 0.2 0.3 0.4 1.0 1.1 1.2 1.3 1.4 2.0 2.1 2.2 2.3 2.4 3.0 3.1 3.2 3.3 3.4 4.0 4.1 4.2 4.3 4.4 Preference Stretch Type: Fit In •

6.2.3 Video Wall

1. Set the Transmitter and Receiver with same Channel numbers.

2. Change the "Vertical Monitor Count" and "Horizontal Monitor Count" to create a video wall. Note:Using this tool, the maximum video wall size is 5X5.

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

etwork	Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0.1mm) OW: 0 OH: 0
Device Info Hostname ID: 01	Lan Status: s_attaching	MAC Address: 024DF5C5E505	VW: 0 VH: 0 Wall Size and Position Layout Vertical Monitor Count: 2 Territorial Monitor Count: Territorial Monitorial Moni
ТХ	Casting Mode	RX	Horizontal Monitor Count:
IP Hostname ID	Multicast Multicast	IP Multicast IP OSI	
169.254.8.52 01	Channel (
	Auto IP O DHCP Static		
	IP Address: 169 . 254 . 8 . 52		Preference
	Subnet Mask: 255 . 255 . 0 . 0		Stretch Type: Fit In Clockwise Rotate: 0
• m •	Default Gateway: 169 . 254 . 0 . 1	* *	Show OSD

3. Click "Show OSD".

K Over IP Control	l Center V1.8				
Network Scan	Upgra	ade	Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0.1mm) OW: 0 OH: 0 VW: 0 VH: 0
Device Info Version:	Hostnam	e ID:	Lan Status:	MAC Address:	Wall Size and Position Layout Vertical Monitor Count: 2
TX IP	Hostname ID	Casting Mode	O Unicast	RX IP Multicest IP OSt	Horizontal Monitor Count: 2 0_0 0_1 1_0 1_1
		 Auto IP IP Address: Subnet Mask: Default Gateway: 	DHCP Static 		Preference Stretch Type: Fit In v Clockwise Rotate: 0 v

4. Select the RX and drag it to the corresponding position indated by the reference blocks. The position will be included in the OSD shown on the screen.

twork	rade Factory Default	Reboot Apply	Video Wall Bezel and Gap Compensation(Unit: 0.1mm) OW: 0 OH: 0
Device Info Hostname ID: 00	Lan Status: s_attaching	MAC Address: 024DF5C5E505	vw: 0 VH: 0 Wall Size and Position Layout vertical Monitor Count: 2 •
тх	Casting Mode	RX	Horizontal Monitor Count: 2
IP Hostname ID	Multicast O Unicast	IP Multicast IP OSI	
169.254.8.52 00		169.254.5.9 225.0.100.0 0	0_0 0_1
	Channel	169.254.5.16 225.0.100.1 1	10 11
		169.254.5.25 225.0.100.2 2	
	IP Mode	169.254.5.41 225.0.100.3 3	
	Auto IP DHCP Static		
	IP Address: 169 . 254 . 8 . 52		Dreference
	Subset Marke 255 255 0 0		Stretch Type: Fit In
	SUDICI MASK. 233 . 233 . 0 . 0		Clockwise Rotate:
	Default Gateway: 169 . 254 . 0 . 1		
< III > >		4 III +	Show OSD

6.3 IP Configuration

The 4K HDMI & USB Over IP Extender can be configured via LAN provided the

Transmitter and Receiver are in the same subnet.

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

ou can get IP settings assigne is capability. Otherwise, you ne e appropriate IP settings.	d automatically if your network supports eed to ask your network administrator for natically
Use the following IP ad	ddress:
JP address:	169.254.0.221
S <u>u</u> bnet mask:	255.255.0.0
Default gateway:	• • •
Obtain DNS server addres	s automatically
Use the following DNS :	server addresses:
Preferred DNS server:	
Alternate DNS server:	

Figure 1. Internet Protocol (TCP/IP) Properties

2. Connect the TX and RX to the Ethernet switch, then also connect the PC to the Ethernet switch.

Because this unit supports DHCP, different units may have different server-assigned IP addresses, so the first thing we need know is the IP address of each unit.

There are two ways to get the IP address A) Using the "Node List"

Open the "Node List.bat " found in the "Tool" folder. Click twice the "Node_list.bat" to open the dialog box.

包含到库中 ▼	共享 ▼	刻录	新建文件实		
			名称	修改日期	类型
			🧃 cygwin1.dll	2015-08-20 17:41	应用稻
			🗐 node_list.bat	2015-09-04 15:53	Winde
问的位置			node_list.exe	2015-09-04 15:30	应用稻

Then we can see all the IP addresses of both the TX and RX as shown below in the dialog box.

C:\Windows\syst	tem32\cmd.exe		
C:\lsers\Admin	istrator\Deskton\T00L\ood	e list>node list_exe	
IP Hostna	me Status		
>>>>>			
169.254.8.18	ast3-client824673B6838B	s_srv_on	
169.254.5.205	ast3-client8241D857544E	s_srv_on	
169.254.10.38	ast3-client82FA46FBAB9A	s_srv_on	
169.254.8.180	ast3-gateway0000	s_srv_on	
169.254.3.191	ast3-client82767D19730B	s_srv_on	
169.254.7.229	ast3-gateway1111	s_attaching	
<<<<			
C: Wsers Admin	istrator/Desktop/100L/node	e_list>pause	
Press any key t	co continue		

Notes: An IP address with "Client" in the Hostname is an RX

An IP address with "Gateway" in the Hostname is a TX.

B) Using the OSD.

Connect all devices using proper cables except the video source.



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

After power-up, the device information including the Transmitter and Receiver IP address will be shown in the lower right corner. Make note of the Transmitter and Receiver IP address(es) on each monitor screen and then connect the HDMI video source cable to the Transmitter.



Figure 3. Device IP Indication

3. The administrator can enter a Transmitter or Receiver IP address into the address bar of the web browser (we recommend using Google Chrome) to enter the Extender's Web UI (User Interface).

If the link is successful, the user 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 settings

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. (No new firmware is currently available.)

System Video Wall Network Functions	
Version Information:	Í
▼ Update Firmware:	
選擇檔案	
Upload	
Warning: Stop any service by disconnecting from the peer before you proceed to upgrade firmware.	

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

ftp-shere (NAS-Partilink (NAS I Partilink DATA (NAS-Partilink (allc.bin		2015/11/10 下午 2015/11/10 下午	BIN 檔案
↓ 下載 ■ 影片 ■ OS (C:)	webfwc.bin		2015/11/10 下午	BIN
🕳 Data (D:) ② DVD RW 磁碟機 (E:) PHOTOSLI 🗸	<		_	>
檔案名稱(<u>N</u>): webfw	c.bin	→ 所有檔案		~
		開啟(0)	■ 取消	

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



mware file name: webfwc.bin mware file size: 8531172 bytes compressing firmware ofform matched. wrt programming flash gramming bootloader gramming kernel gramming rootfs	Firmw	vare Update Progress:	
mware file size: 8531172 bytes compressing firmware htform matched. hrt programming flash ogramming bootloader gramming kernel gramming rootfs	firmware	file name: webfwc.bin	
compressing firmware otform matched. wrt programming flash ogramming bootloader ogramming kernel ogramming rootfs	Firmware	file size: 8531172 bytes	
atform matched. Art programming flash Ogramming bootloader Ogramming kernel Ogramming rootfs	Decompres	sing firmware	
art programming flash ogramming bootloader ogramming kernel ogramming rootfs	latform	matched.	
pgramming bootloader ggramming kernel ggramming rootfs	start pro	gramming flash	
gramming kernel gramming rootfs	programmi	ng bootloader	
gramming rootfs	programmi	ng kernel	
	programmi	ng rootfs	
gramming rootfs patch	programmi	ng rootfs patch	
gramming logo	programmi	ng logo	
	programmi	ng parameters	
gramming parameters	Programmi	ng completed	
gramming rootfs patch gramming logo	ogrammi ogrammi	ng rootfs ng rootfs patch ng logo	
animiting togo	rogrammi	ng papameters	
Constant and another and a second s	rogrammi	ng parameters	
gramming parameters	rogrammi	ng compieted	

7.1.3 [Utilities]

There are some functions under Utilities:

- Factory Default: Click on to return the device to factory default settings when needed.
- **Reboot:** Click on to reboot the extender (RX or TX)
- Console API Command: Input Linux command for advanced setting

System	Video Wall Network Functions
→ Versio	on Information:
→ Updat	e Firmware:
• Utilitie	25:
Co	mmands
	Factory Default Reboot
Co	nsole API Command
	Apply
	Output
 Statis 	tics:

7.1.4 [Statistics]

Indicates the extender link and working status



7.2 Video Wall

To set up the video wall application

7.2.1 [Basic Setup]

Pagel and Can C		
Bezer and Gap Co	ompensation	
ow:		ow
1		T T T T T T T T T T T T T T T T T T T
OH:		T 11
1		s
vw:		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
I		+-······
VH:		· · · · · · · · · · · · · · · · · · ·
1		UNIT: 0.1mm
Horizontal Monitor 1 Row Position: 0 Column Position: 0	v v	L L L L L L L L L L L L L L L L L L L
Preferences	Certa	
Stretch Type:	Fit In	-
Clockwise Rotate:	0	-
apply To: "This" devic This	e connected by	your browser

• 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

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 an integer.

ow:	ow
1	μμ
он:	Ţ
1	
vw:	1 :£
1	
VH:	
1	UNIT: 0.1mm

• 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 to "fit in" the screen or "stretch out" and then provide the rotation angle (if applicable- leave at 0 if not).

Stretch Type:	Fit In	+		
	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	~	
Clockwise Rotate:	0	$\mathbf{\sim}$	

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

• Show OSD:

Check the "Show OSD" box to output a number to each receiver's connected monitor.

Stretch Type:	Fit In	•	
Clockwise Rotate:	0	•	
Apply To: "This" devid	ce connected by you	rhrowser	
Apply To: "This" devic	ce connected by you	r browser	
Apply To: "This" device	ce connected by you	r browser	
Apply To: "This" device This Show OSD	ce connected by you Apply	r browser	

7.2.2 [Advance Setup]

ivanced Setup:	
Step 1: Choose Control Target	
step 1. choose control rarget	
Show OSD	
Step 2: Control Options	
Reset to Basic Setup:	
	Reset
Stretch Type:	a ninter
	Арріу
Clockwise Rotate:	
o *	Apply
Screen Layout (Row x Column):	
	• Apply
Row Position:	
•	Apply
Column Position:	Apply
	мррну
Horizontal Shift:	
Latt Right 0	Apply
Vertical Shift:	
Op Down 0	Apply
Horizontal Scale Up (N pixels/column_count):	
0	Apply
Vertical Scale Up (N pixels/row_count):	
0	Apply

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

Step 1: In "Basic Setup", select Vertical and Horizontal Monitor Count. For example Vertical Monitor Count = 3, Horizontal Monitor Count = 5

Vertical Mo	nitor Count:	Horizontal Monitor Count
3	•	
Horizontal I	Monitor Count:	
5	+	- Ventica
Row Positio	n:	
0	Ť.	
Column Pos	ition:	I
0	•	

Step 2: In "Advanced Setup", choose the target (receiver) 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 incorrect settings are made, press the "Reset" in Reset to Basic Setup function.

Reset to Basic Setup:		
	Reset	

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

100 March 100 Ma		
Fit In	-	Apply
Fit In		
Stretch Out		

Setup the rotation angle of the video output

0	-	Apply
0		1.00
180		
270		

Set up the vertical and horizontal position number of the monitor based on the video wall layout. Vertical number 1~8 and horizontal number 1~16. Setup the row position of the monitor, numbered from 0 to the total number of vertical monitors.

3	-	X 5	•	Apply
1 2		N		
3				
4				
5				
6				

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

0	-	Apply
0		
1		
2		
3		
4		
5		

0	•	Apply
0.0		
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 Scale Up: Setup the video vertical scale up.

Ventical Chi		
Up De	U	Арріу
Horizontal S	cale Up (N pixels/column_count)	:
0		Apply
0		

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

Apply	
ALC: N	

7.3 Network: Update the network setup of the extender system

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

7.3.1 [IP Setup]

• Auto IP: Use to automatically assign the extender 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 <mark>Gatew</mark> ay:	169.254.0.254			

• **DHCP:** Use a DHCP Server to assign the IP.

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

Static: Use the static IP setting to assign the IP address 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-many points or many-to-many points broadcast
- Unicast: point-to-point broadcast

Multicast	Unicast				
Auto select	USB operation mod	le per casting moo	le (recomman	ded)	
					noly

7.4 Functions:

Setup the video output and USB extension mode for Transmitter

🗹 Ena	ble Video over IP
🗹 Ena	ble Video Wall
Сор	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
	Apply
USB (iver IP
🗹 Ena	ble USB over IP
	tion Mode:
Opera	the select mode (Decommonded, choose one actually section read-)
Opera	Auto Select mode (Recommanded, choose per network casting mode)
Opera Opera	Auto serect mode (recommanded, choose per network casting mode) Active on link (Unicast network's default mode) Active per request (Multicast network's default mode)
Opera Opera Opera Opera Opera Opera Opera	Active on link (Unicast network's default mode) Active per request (Multicast network's default mode)

Setup the video output and USB extension mode for Receiver

🗹 Ena	ole Video over IP
🗹 Ena	ole Video Wall
Maxim	um Bit Rate: Best Effort
Maxim	um Frame Rate: Capture up to 100% of frames
	Apply
USB o	over IP
🗹 Ena	ble USB over IP
Opera	tion Mode:
0	Auto select mode (Recommanded, choose per network casting mode)
0	Active on link (Unicast network's default mode) Active per request (Multicast network's default mode)
Compa	tibility Mode:
	Aouse not responding well (Check when USB mouse responding is slow and quee (/M over IP (Uncheck when 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 just one of the receivers.
- Scaler Output Mode: Select the required scaler 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:** Set the amount of time before the monitor turns off when a loss of video is detected

Customize Scaler Output Mode for Receiver

stem Video Wall	Network Functions
Video over IP	
🖲 Enable Video over	ІР
🖉 Enable Video Wall	
Copy EDID from th	is Video Output (Default disabled under multicast mode)
Scaler Output Mode:	Pass-Through Pass-Through
Timeout for Detectin	Full HD 1080p50 Full HD 1080p50 Ultra HD 2160p30 Ultra HD 2160p25
Turn off screen on	Customize
	Apply
UCD over TD	
USB OVER IP	
Enable USB over I	
Operation Mode:	
 Auto select model Active on link (Active per require 	le (Recommanded, choose per network casting mode) Unicast network's default mode) est (Multicast network's default mode)

• Customize Scaler Output Mode for Receiver

vstem Video Wall	Network Functions	
Video over IP		
	IP	
Copy EDID from th	is Video Output (Default disable	d under multicast mode)
Scaler Output Mode:	Pass-Through 🔻	
	Pass-Through	
Timeout for Detectin	Ultra HD 2160p30 Ultra HD 2160p25	-
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	•	
Timoout for Dotacting Video Lact	10 councile	
	10 seconds	
Turn off screen on video lost	5 seconds	
	10 seconds	
	20 seconds	
	30 seconds	Apply
	60 seconds	-
	Never Timeout	

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

🕑 En	able USB over IP
Oper	ation Mode:
۲	Auto select mode (Recommanded, choose per network casting mode)
C	Active on link (Unicast network's default mode)
C	Active per request (Multicast network's default mode)
Com	patibility Mode:
	K/M over IP (Uncheck when mouse/keyboard/touch panel not working as expected)
	Apply

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. D

Serial Over IP

Enable Serial ove	r IP				
Operation Mode:					
Type 1 (Need	extra control in	nstruction. Fo	r advance	d usage.)	
Type 2 (Recon	nmanded. Dum	b redirection)		
Type 1 guest	mode				
- Type I guest	linoue				
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 mo	de ner casting m	ode (recomma	nded)	
- Auto Sciece	oob operation no	de per custing in	oue (reconnic	ideu)	
					Apply
					Арріу

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 set the ID of these transmitters individually, then edit the group of transmitters and receivers. The corresponding receivers will output the video from the transmitter belonging to the same group ID.

HDMI KVM Extender Over Ethernet /Fiber	HDMI KVM Extender Over Ethernet /Fiber
Receiver	Transmitter
TX + RX Operation	TX + RX Operation
Wash	Mode
IR-RX IR-TX III-TX IIIIIIIIIIIIIIIIIIIIIIIIIIIII	IR.RY ID.TY



8.4 Video wall:

A 3X5 (row x column) video wall setting example is shown here for reference. In multicast and matrix application mode, access the web user interface of the corresponding 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

The administrator can complete each Extender position setting after following step 5 above, and then following the above steps to set the other extenders to the rest of the 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 to other detailed settings 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.



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.



Return to the previous setup of video wall quickly when the incorrect operation has been input

Reset to Basic Setup:	
	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



SPECIFICATIONS

Local Unit

- Compatible with a USB computer with Ultra-HD HDMI output.
- Multiplatform support: Windows 7/8/10/11, Windows Server 2008/2012/2016/2019/2022, Linux, FreeBSD, and MAC OS 10/11/12/13.
- One female HDMI connector.
- One female USB Type B connector.
- Two female 3.5mm ports for connecting an IR emitter and receiver (included).
 - IR frequency: 38kHz to 56kHz
- 3-pin screw terminal for RS232.
 - Supports full-duplex RS232 up to 115200 baud.
- One female RJ45 port for sending/receiving high definition video/audio, USB, RS232, and IR signals.
- One SFP receptacle fiber extension not supported at this time.
- DIP switch for specifying unit ID.

Remote Unit

- One female HDMI connector.
 - Supports Ultra-HD 4Kx2K resolutions to 3840x2160
 @30Hz, HDTV resolutions to 1080p, and up to 1920x1200 (WUXGA).
 - Supports embedded digital audio through HDMI compatible TVs or audio receivers.
- Two female USB 2.0 Type A connectors for keyboard, mouse, flash drive, or touchscreen display.
 - Keyboard and mouse are hot-pluggable.
- Two female 3.5mm ports for connecting an IR emitter and receiver (included).
 - IR frequency: 38kHz to 56kHz
- 3-pin screw terminal for RS232.
 - Supports full-duplex RS232 up to 115200 baud.
- One female RJ45 port for sending/receiving high definition video/audio, USB, RS232, and IR signals.

- One SFP receptacle fiber extension not supported at this time.
- DIP switch for specifying unit ID.

Power

- Power over Ethernet: With a switch that supports PoE, a power supply is not required at the local or remote unit.
 - Compliant with IEEE 802.3af, class 0 standards.
- Local and remote unit:
 - Input: 100 to 240 VAC at 50 or 60 Hz via AC adapter (included).
 - Output: 5VDC, 2A

Dimensions

• WxDxH (in): 6.30x4.06x1.18 (160x103x30 mm).

Environmental

- Operating temperature: 23 to 95°F (-5 to 35°C).
- Storage temperature: 14 to 140°F (-10 to 60°C).
- Operating relative humidity: 5 to 90% non-condensing RH.

Regular Approvals

• CE, FCC, RoHS

Max Distance

- 394 feet over CAT5e/6/6a/7 cable.
- Cascade network switches to extend the length long distances.

WARRANTY

The warranty period on this product (parts and labor) is two (2) years from the date of purchase. Please contact Network Technologies Inc at (800) 742-8324 (800-RGB-TECH) or (330) 562-7070 or visit our website at http:// www.networktechinc.com for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.