

KanexPro®

NetworkAV™ over IP Sender & Receiver w / Central Control & PoE



EXT-NETAVTX
EXT-NETAVRX

All Rights Reserved

EXT-NETAVRX_V1.0

Statement

Read this user manual carefully before using the product. Pictures shown in this manual is for reference only. Different models and specifications are subject to real product. This manual is only for operation instruction only. The functions described in this version are updated as of May 31st, 2018. In the constant effort to improve our product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

Safety Precaution

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.

- Do not dismantle the housing or modify the module to avoid electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Do not expose the unit to rain, moisture or install this product near water.
- Install the device in a place with fine ventilation.
- Do not twist or pull by force ends of the CAT5e/CAT6a cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Refer all servicing to qualified service personnel.

Customer Service

We provide limited warranty for the product within three years. Contact us at (888)-975-1368 For more details, please contact your distributor or dealer. Or email us directly to support@kanexpro.com

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Revision History

| Version No. | Date | Changes |
|-------------|------|---------|
| V1.0 | | |
| | | |
| | | |
| | | |
| | | |

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1. Introduction

The KanexPro EXT-NETAV is a total solution package for those looking to distribute multiple HD content to multiple HD displays over IP with an easy to use built-in controller over a standard 1G network switch.

Compliant with HDCP, this set of Sender and Receiver offers configurable high quality, low-bandwidth H.264 compression video supporting resolutions up to 1920x1080@60fps. It's a great solution for those looking to upgrade the traditional DVI/HDMI matrix switchers.

2. Features

- Encode & Decode AV over IP up to 495ft. (120m)
- Create a Video Wall or a Multiview experience with 100's of screens
- Unicast, Multicast, Matrix, Video Wall and Multi-viewer (up to 5 windows)
- Unlimited scalability (based on network topology)
- Low 1.5 frames per second latency
- Video resolution up to 1080p/60Hz (4:4:4)
- Supports Audio Embedding on the Sender
- Supports Audio De-embedding on the Receiver
- Works with 1G standard managed network switch
- Works with IP Camera
- H.264 Encoding/Decoding compression
- Local HDMI output on sender
- Control via RS-232 & Web-based GUI controller built-into the Sender
- POE - No power supply needed if using POE managed network switch
- Compact design for an easy and flexible installation to rack
- Backed by KanexPro 3-year parts and labor warranty

3. Package Contents

- 1 x NetworkAV™ Decoder
- 1 x DC 12V Power Adaptor
- 1 x User Manual

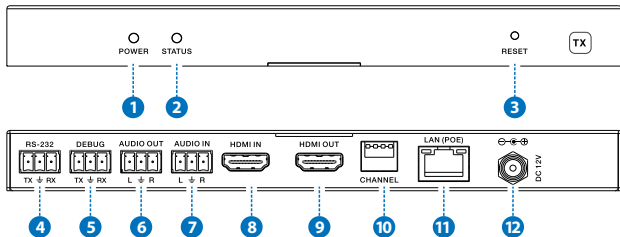
4. Specifications

| Technical | |
|--------------------|--|
| HDMI Compliance | HDMI 1.4b |
| HDCP Compliance | HDCP 1.4 |
| Video Bandwidth | 4.95Gbps |
| Video Resolutions | 640x480p@60Hz ~ 1920x1080p@60Hz |
| Output Video Type | H.264/MPEG-4 AVC |
| Encoding Data Rate | Up to 30Mbps, configurable |
| Color Space | RGB, YCbCr 4:4:4, YCbCr 4:2:2 |
| Color Depth | 8-bit |
| HDMI Audio Formats | LPCM 2CH, 48KHz |
| L/R Audio Formats | Analog Stereo 2CH |
| ESD Protection | Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge) |
| Connections | |
| Sender | Inputs: 1x HDMI Type A [19-pin female] 1x L/R Audio In [3.81mm Phoenix connector] 1x RS-232 [3.81mm Phoenix connector] Outputs: 1x LAN [RJ45 connector] 1x HDMI Type A [19-pin female] 1x L/R Audio Out [3.81mm Phoenix connector] 1x Debug [3.81mm Phoenix connector] |
| Receiver | Inputs: 1x LAN [RJ45 connector] Outputs: 1x HDMI Type A [19-pin female] 1x L/R Audio Out [3.81mm Phoenix connector] 1x RS-232 [3.81mm Phoenix connector] 1x Debug [3.81mm Phoenix connector] |
| Mechanical | |
| Housing | Metal Enclosure |
| Color | Black |
| Dimensions | 200mm [W] x 103mm [D] x 20mm [H] |
| Weight | Sender: 530g, Receiver: 526g |
| Power Supply | Input: AC100 - 240V 50/60Hz Output: DC 12V/1A (US/EU standards, CE/FCC/UL certified) |

| | |
|-----------------------|--|
| Power Consumption | Sender: 5.7W (Max), Receiver: 5.6W (Max) |
| Operation Temperature | 32 - 104°F / 0 - 40°C |
| Storage temperature | -4 - 140°F / -20 - 60°C |
| Relative Humidity | 20 - 90% RH (no condensation) |

5. Operation Controls and Functions

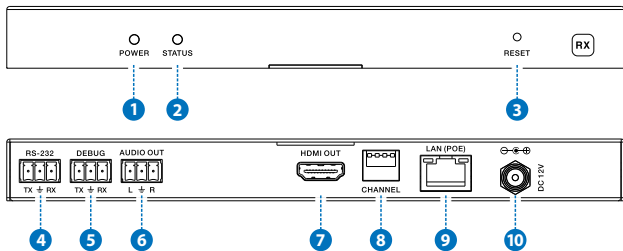
5.1 Sender



| Items | Name | Description |
|-------|--------|--|
| 1 | POWER | System power status LED |
| 2 | STATUS | System working status LED One second period flickering means product working normally. Always on means system worked abnormally, this time you need to reset product by pressing reset button on the front panel or plugging power supply on the rear panel (you need plug CAT cable if product is using POE for power supply). |
| 3 | RESET | System reset button. Short pressing (<5 seconds) will reset product. Long pressing (over 5 seconds) will let product enter firmware upgrade mode. |
| 4 | RS-232 | Connect third-party control system to control this product utilizing our API commands or control other devices be connected to our products (including Senders and Receivers) via RS-232 port (this is called RS-232 pass-through). |

| | | |
|----|-----------|---|
| 5 | DEBUG | System debug port |
| 6 | AUDIO OUT | Analog stereo audio output |
| 7 | AUDIO IN | Analog stereo audio input |
| 8 | HDMI IN | HDMI input port, connect to HDMI source device |
| 9 | HDMI OUT | HDMI loop out (default video only no audio, you can enable audio from Web GUI or API) |
| 10 | CHANNEL | Reserved use |
| 11 | LAN(POE) | Connects with Hub or router for sending data to Receiver. |
| 12 | DC 12V | Connects with 12V/1A power adapter supplied in the package or doesn't need this if an IP switcher/router/hub with POE feature be connected. |

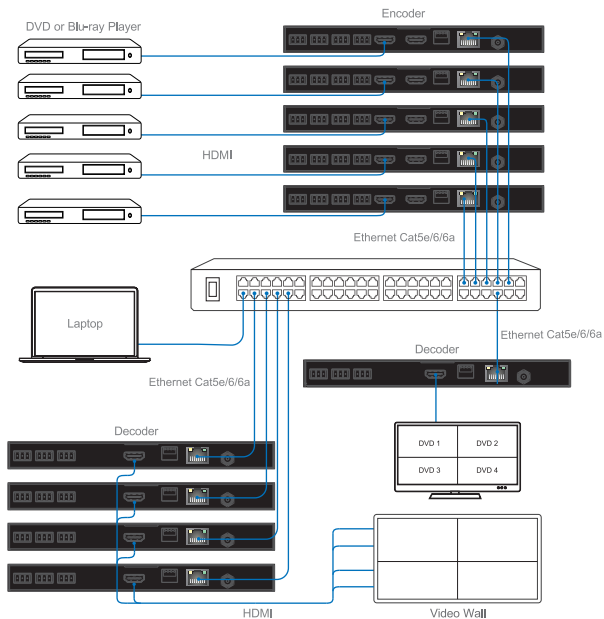
5.2 Receiver



| Items | Name | Description |
|-------|--------|---|
| 1 | POWER | System power status LED |
| 2 | STATUS | System working status LED One second period flickering means product working normally. Always on means system worked abnormally, this time you need to reset product by pressing reset button on the front panel or plugging power supply on the rear panel (you need plug CAT cable if product is using POE for power supply). |

| | | |
|----|-----------|---|
| 3 | RESET | System reset button. Short pressing (<5 seconds) will reset product. Long pressing (over 5 seconds) will let product enter firmware upgrade mode. |
| 4 | RS-232 | Connect third-party control system to control this product utilizing our API commands or control other devices be connected to our products (including Senders and Receivers) via RS-232 port (this is called RS-232 pass-through). |
| 5 | DEBUG | System debug port |
| 6 | AUDIO OUT | Analog stereo audio output |
| 7 | HDMI OUT | HDMI output port, connect to HDMI display device |
| 8 | CHANNEL | Reserved use |
| 9 | LAN(POE) | Connects with Hub or router for receiving data to Sender. |
| 10 | DC 12V | Connects with 12V/1A power adapter supplied in the package or doesn't need this if an IP switcher/router/hub with POE feature be connected. |

6. Connection Diagram



7. Installation & Setup

7.1 Basic Instructions

1. The set of sender and receiver can form a complex AV over IP system that supports Web-based GUI controlling and management.
2. Any Sender can be turned into master controller just by selecting the master controller option from the web-based GUI management system.
3. Once the master controller role is assigned to sender, then the same sender can be used to configure all the sender and receiver connected in the network.
4. Master controller can be accessed using the default login credentials.

A step by step configuration for first time installation

(1) Choose a Sender box as “Master Controller”, you can connect sender to your laptop through CAT5e/6 cable directly or through a managed network switch as shown below:

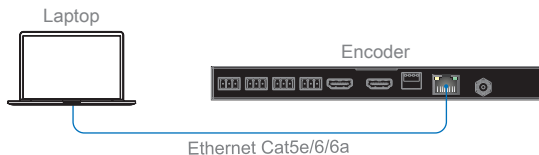


Figure 1: Laptop connects to Controller directly

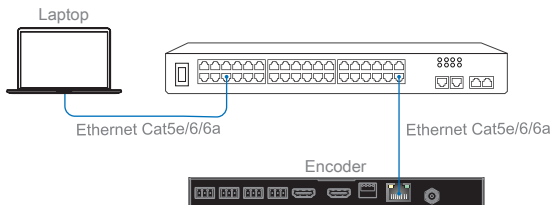


Figure 2: Laptop and Controller both connect to switcher

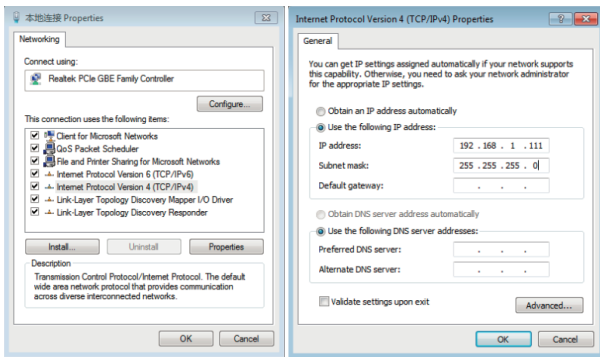
Note: If you have configured the connection as described above then please have only one Sender (Master controller) connected to the switch.

All Senders have the same default IP address: 192.168.1.28.

All Receivers have the same default IP address: 192.168.1.38.

Kindly update the IP address of sender which you have decided to make the master controller. Once the IP address of the Master controller is changed then you can configure all the senders and receivers connected in the network.

(2) Set your laptop IP setting to the same domain with Controller so that you can login Controller's Web page, for instance set laptop IP address to 192.168.1.111



(3) Login Master Controller Web page by typing in your default IP address (192.168.1.28) in your internet browser.

Username: admin

Default don't need password to login.

As per the screen shot of the Dashboard below, please click searching devices icon (Right to the Device List) to search all Senders and Receivers in the network.

➔ Device List 



The screenshot displays the KanexPro EXT-NETAVKIT dashboard. At the top, there is a navigation bar with buttons for Dashboard, Setup, Video Wall, Sender, Receiver, Serial, Streaming, and Update. The main content area is titled "Dashboard" and features a "Device List" section on the left with a refresh icon. The "Device List" is divided into "Receiver (RX)" and "Sender (TX)" sections, each listing IP addresses and device names. The central "Video Wall" section is currently in "Unicast" mode and shows a grid of video sources. The top row contains two "TX1" sources (192x1080) and two "TX-CON" sources (192x1080). The middle row contains a "TX2" source (480x288), a "TX-CON" source (480x288), a "TX-1" source (480x288), another "TX2" source (480x288), a "TX1" source (480x288), another "TX2" source (480x288), another "TX-CON" source (480x288), and a final "TX2" source (480x288). The bottom row contains a single "TX-CON" source (192x1080). On the right side, there is an "Add Presets" section with two preset buttons and a "Video Wall Layouts" section with a list of aspect ratios: 16:9, 9:16, 4:3, 1:1, and L7.

Please go to Setup page and change the default sender IP address to any other IP Address. For instance, 192.168.1.61 as shown in the image below.

KanexPro EXT-NETAVKIT Admin Log Out

Network AV over IP Encoder & Decoder Set w/ Central Control & PoE

Dashboard Setup Video Wall Sender Receiver Serial Streaming Update

Setup

Device IP Config

IP Address: 192.168.1.61 new IP Address: 192.168.1.61 Name: unnamed

Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1

Apply

Web Multi-Controller Settings

Controller Master:

Apply

FW Version Info

Model: EXT-NETAVKIT

Version: V2.2.3_0316_2018

Build: Mar 16 2018 12:34:27

Web Controller Password

New Password: (Attention) Password must be 4 to 16 characters or digits.

Apply

Web Controller Commands

Reboot Reset To Factory Default

Commands

Send Commands Clear Log

Log(Only display the latest 20 records)

```
13:36:48 config get vs all params return success
13:36:48 config get vs all params return success
13:36:51 config get vs all params return success
13:36:51 config get vs all params return success
13:36:54 config get vs all params return success
13:36:54 config get vs all params return success
13:40:02 config get vs all params return success
13:40:02 config get vs all params return success
13:40:04 config get vs all params return success
13:40:04 config get vs all params return success
13:40:14 config get vs all params return success
13:40:14 config get vs all params return success
13:40:19 config get vs all params return success
13:40:19 config get vs all params return success
13:40:26 config get vs all params return success
13:40:26 config get vs all params return success
13:40:31 config get vs all params return success
13:40:31 config get vs all params return success
13:40:31 config get vs all params return success
13:40:56 config get vs all params return success
13:40:56 config get vs all params return success
```

Once the Main controller (Sender) IP address is changed then you can change the other sender and receiver IP address.

Note: During changing Senders and Receivers IP address, you can see their MAC address on the Web page (as below picture). Receiver will display its own IP address and firmware version information on the corresponding display. So, you would easily identify which Receiver you're changing.

If all the sender's are connected at the same time, each sender's ip address need to change as per the Mac address labeled at the bottom of the housing.

Otherwise, connect each sender at a time and change the IP address accordingly.

SETUP

The screenshot displays the KanexPro EXT-NETAVKIT web interface. The top navigation bar includes 'Dashboard', 'Setup', 'Video Wall', 'Sender', 'Receiver', 'Serial', 'Streaming', and 'Update'. The 'Setup' section is active, showing the 'Device IP Config' form. The form includes fields for 'IP Address', 'Subnet Mask', 'new IP Address', and 'Gateway'. The 'IP Address' dropdown menu is open, showing a list of IP addresses: 192.168.1.200, 192.168.1.201, 192.168.1.202, 192.168.1.203, 192.168.1.1, and 192.168.1.2. The 'new IP Address' field is set to 192.168.1.200, and the 'Gateway' field is set to 192.168.1.1. Below the IP config section, there are 'Web Multi-Controller Settings' and 'FW Version Info' sections. The 'FW Version Info' section shows the Model as EXT-NETAVKIT, Version as V2.2.4.6_0024_2019, and Build as May 24 2019 17:41:38.

| Field | Value |
|----------------|---------------|
| IP Address | 192.168.1.200 |
| Subnet Mask | 192.168.1.200 |
| new IP Address | 192.168.1.200 |
| Gateway | 192.168.1.1 |
| Name | TK |

Web Multi-Controller Settings

| | |
|-------------------|-------------------------------------|
| Controller Master | <input checked="" type="checkbox"/> |
|-------------------|-------------------------------------|

FW Version Info

| | |
|---------|----------------------|
| Model | EXT-NETAVKIT |
| Version | V2.2.4.6_0024_2019 |
| Build | May 24 2019 17:41:38 |

Rename Sender/ Receiver

You can also label the sender and receiver IP address for as per your sources and display connected. Please use the Field NAME on the right of New IP address.

The screenshot shows the KanexPro web interface for the EXT-NETAVKIT device. The top navigation bar includes 'Dashboard', 'Setup', 'Video Wall', 'Sender', 'Receiver', 'Serial', 'Streaming', and 'Update'. The 'Setup' page is divided into three sections:

- Device IP Config:** Fields for IP Address (192.168.1.61), Subnet Mask (255.255.255.0), new IP Address (192.168.1.61), Gateway (192.168.1.1), and Name (unnamed). An 'Apply' button is present.
- Web Multi-Controller Settings:** A 'Controller Master' checkbox is checked, with an 'Apply' button below it.
- FW Version Info:** Model: EXT-NETAVKIT, Version: V2.2.3_0316_2018, Built: Mar 16 2018 12:34:27.

Multi-Purpose Video Over IP Controller

The screenshot shows the 'Multi-Purpose Video Over IP Controller' interface. The top navigation bar includes 'Main', 'Video Wall Config', 'System', 'RX', and 'TX'. The 'Video Wall Config' page has tabs for 'Video Wall', 'Unicast', and 'Multicast'. On the left, there is a 'Device List' table:

| Device List | |
|---------------|-----------------------|
| RX | |
| ■ TV1 | 192.168.1.63 1x 4x 5x |
| ■ TV2 | 192.168.1.64 1x 4x 5x |
| ■ TV3 | 192.168.1.61 1x 4x 5x |
| ■ TV4 | 192.168.1.60 1x 4x 5x |
| ■ TV5 | 192.168.1.62 1x 4x 5x |
| TX | |
| ■ CON_DVD1 | 192.168.1.30 |
| STREAM | |

The right side of the interface shows a large dark area, likely representing the video wall display.

(4) Now you can put other Senders into system, and click “searching devices” icon:

The screenshot displays the 'Multi-Purpose Video Over IP Controller' interface. At the top, there are navigation tabs: 'Main' (selected), 'Video Wall Config', 'System', 'RX', and 'TX'. Below the tabs, there are three buttons: 'Video Wall', 'Unicast', and 'Multicast'. The 'Device List' section on the left contains a table of devices, categorized into RX, TX, and STREAM. Each device entry includes a name, an IP address, a status icon (a green circle with '15'), and resolution options (4x and 5x).

| Category | Device Name | IP Address | Status | Resolution |
|----------|-------------|--------------|--------|------------|
| RX | TV2 | 192.168.1.64 | 15 | 4x 5x |
| | TV1 | 192.168.1.63 | 15 | 4x 5x |
| | TV3 | 192.168.1.61 | 15 | 4x 5x |
| | TV4 | 192.168.1.60 | 15 | 4x 5x |
| | TV5 | 192.168.1.62 | 15 | 4x 5x |
| TX | CON_DVD1 | 192.168.1.30 | | |
| | unnamed | 192.168.1.28 | | |
| | unnamed | 192.168.1.28 | | |
| | unnamed | 192.168.1.28 | | |
| | unnamed | 192.168.1.28 | | |
| STREAM | | | | |

Please change every one's IP address and name like above steps:

The screenshot displays the 'Multi-Purpose Video Over IP Controller' interface. The top navigation bar includes 'Main', 'Video Wall Config', 'System', 'RX', and 'TX'. The 'Main' tab is active. On the left, the 'Device List' section shows a table of devices under 'RX' and 'TX' categories. Each device has a name, an IP address, a status indicator (a green circle with '1x'), and two checkboxes labeled '4x' and '5x'. The 'TX' section is currently empty. On the right, the 'Video Wall' configuration area is shown with three tabs: 'Video Wall', 'Unicast', and 'Multicast'. The 'Video Wall' tab is selected, displaying a 2x2 grid of video wall panels. The top-left panel is labeled 'TV1', the top-right panel is labeled 'TV2', the bottom-left panel is labeled 'TV3', and the bottom-right panel is labeled 'TV4'. The panels are currently greyed out.

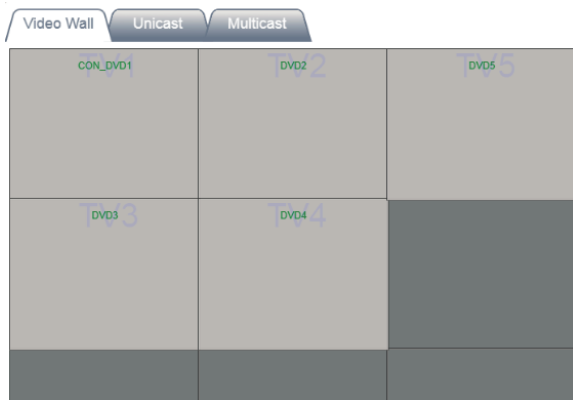
| Category | Device Name | IP Address | Status | 4x | 5x |
|----------|-------------|--------------|--------|--------------------------|--------------------------|
| RX | TV2 | 192.168.1.64 | 1x | <input type="checkbox"/> | <input type="checkbox"/> |
| | TV1 | 192.168.1.63 | 1x | <input type="checkbox"/> | <input type="checkbox"/> |
| | TV3 | 192.168.1.61 | 1x | <input type="checkbox"/> | <input type="checkbox"/> |
| | TV4 | 192.168.1.60 | 1x | <input type="checkbox"/> | <input type="checkbox"/> |
| | TV5 | 192.168.1.62 | 1x | <input type="checkbox"/> | <input type="checkbox"/> |
| TX | CON_DVD1 | 192.168.1.30 | | | |
| | DVD2 | 192.168.1.31 | | | |
| | DVD3 | 192.168.1.32 | | | |
| | DVD4 | 192.168.1.33 | | | |
| | DVD5 | 192.168.1.34 | | | |
| STREAM | | | | | |

(5) Please set video wall parameters according to your system setup. For instance set to 2x2.

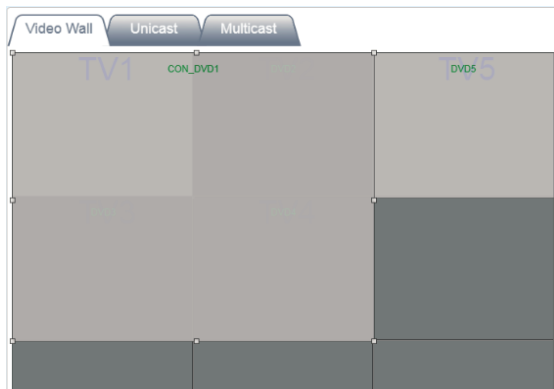
The screenshot shows the 'Video Wall' configuration page in the KanexPro EXT-NETAVKIT interface. The page title is 'EXT-NETAVKIT Network AV over IP Encoder & Decoder Set w/ Central Control & PoE'. The navigation menu includes Dashboard, Setup, Video Wall (selected), Sender, Receiver, Serial, Streaming, and Update. The 'Video Wall' section contains two configuration panels. The first panel, 'Video Wall Config', has 'Screen Layout' with 'Row' set to 2 (range 1-4) and 'Column' set to 2 (range 1-4), with an 'Apply' button below. The second panel, 'Bezel Correction', has 'Horizontal Cut' set to 2 (range 0-8) and 'Vertical Cut' set to 2 (range 0-8), also with an 'Apply' button below.

Go to Main page, you can see below 3x3 video wall layout, and you should drag each Receiver (put your cursor on the RX's IP address position) to each window position firstly. Then you also can drag each Sender to the RX window you want.

The screenshot shows the 'Dashboard' page in the KanexPro EXT-NETAVKIT interface. The navigation menu includes Dashboard (selected), Setup, Video Wall, Sender, Receiver, Serial, Streaming, and Update. The 'Dashboard' section features a 'Device List' on the left with 'Receiver (RX)' and 'Sender (TX)' entries. The main area displays a 3x3 video wall layout with 'Unicast' and 'Multicast' tabs. The layout includes TX1, TX2, TX-COIN, and TX-COIN-1080 components. On the right, there is an 'Add Presets' section and a 'Video Wall Layouts' section with a list of preset sizes: 16:9, 9:16, 4:3, 1:1, and 1:2.



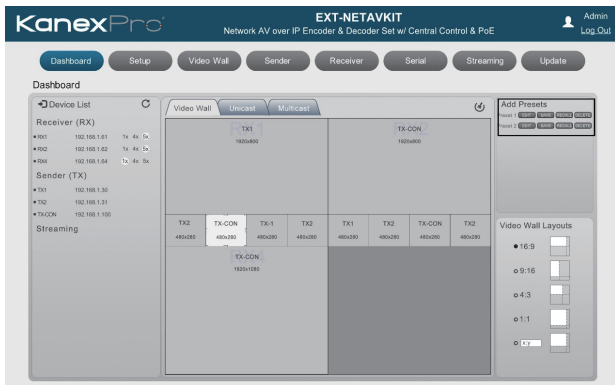
You can drag one video source cross to 4 RX windows (max up to 4x4 16 RX windows) to create a video wall like below.



You also can set multi-view mode by clicking 4x or 5x icon for each Receiver box:

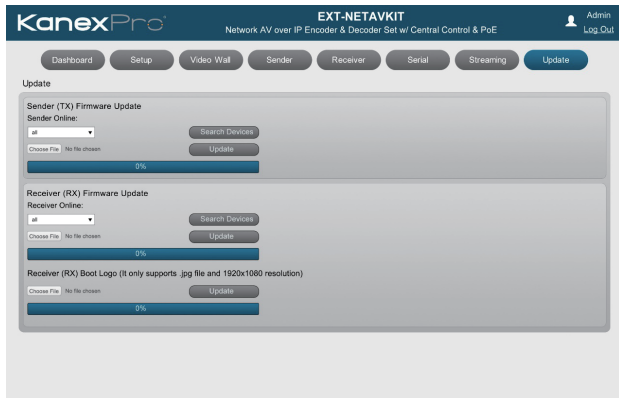
| Device List | | | |
|-------------|--------------|----|-------|
| RX | | | |
| TV2 | 192.168.1.64 | 1x | 4x 5x |
| TV1 | 192.168.1.63 | 1x | 4x 5x |
| TV3 | 192.168.1.61 | 1x | 4x 5x |
| TV4 | 192.168.1.60 | 1x | 4x 5x |
| TV5 | 192.168.1.62 | 1x | 4x 5x |

(6) After you complete all system configurations, current settings would be saved into current Controller box, it will be run automatically at next system power up. Of course, you can also save current configurations to a scene and take a name you want by clicking “Add Scene” icon. You can recall different scenes to reload different system configurations according to your applications.



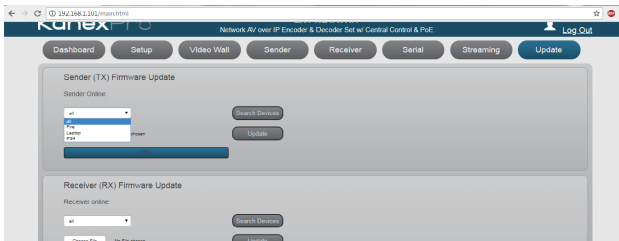
7.2 Firmware Update

Open the Update tab to update the firmware of sender and receiver.



Firmware update can be done for all the sender and receiver by selecting option ALL.

Firmware update can also be performed as per each sender or receiver.



7.3 Control Using Third-party controller

Please contact supplier for the API commands documents.

Customer Services

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. These terms and conditions may be changed without prior notice.

① Warranty

The limited warranty period of the product is fixed 3 (three) years.

② Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

③ Warranty Exclusions:

Warranty expiration.

Factory applied serial number has been altered or removed from the product.
Damage, deterioration or malfunction caused by:

- √ Normal wear and tear.
- √ Use of supplies or parts not meeting our specifications.
- √ No certificate or invoice as the proof of warranty.
- √ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
- √ Damage caused by force majeure.
- √ Servicing not authorized by distributor.
- √ Any other causes which does not relate to a product defect.

Shipping fees, installation or labor charges for installation or setup of the product.

④ **Documentation:**

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributor or email directly to us at support@kanexpro.com

KanexPro®

Brea, California

www.kanexpro.com