plexusAV P-AVN-4

IPMX JPEG XS FIP Transceiver

User Manual

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3200 Sencore Drive, Sioux Falls, SD USA
www.plexusav.com

About PlexusAV

PlexusAV is an engineering leader in the development of high-quality signal transmission solutions for the ProAV market. PlexusAV meets the rapidly changing needs of modern media by ensuring the efficient delivery of high-quality video transmission. For more information, visit www.plexusav.com.

Revision History

Date (MM/DD/YYYY)	Version	Description	Author
04/14/2024	0.01	First Draft	SJR
07/16/2024	0.02	Draft Revision and minor Changes	JDF
08/18/2024	0.03	Draft Revision and minor changes	SJR
09/02/2024	0.04	Draft Revision and minor changes	SJR
11/05/2024	1.00	Updated specifications and accessories sections for release	JDF

Safety Instructions

- Read these instructions
- Keep these instructions
- Heed all warnings
- Follow all instructions
- Do not use this apparatus near water
- Clean only with dry cloth
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
- The mains plug of the power supply cord shall remain readily operable.
- **Damage Requiring Service**: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    - When the power-supply cord or plug is damaged.
    - If liquid has been spilled, or objects have fallen into the product.
    - If the product has been exposed to rain or water.
    - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of the controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
    - If the product has been dropped or damaged in any way.
    - The product exhibits a distinct change in performance.
- **Replacement Parts**: When replacement parts are required, be sure the service technician uses replacement parts specified by Sencore, or parts having the same operating characteristics as the original parts. Unauthorized part substitutions made may result in fire, electric shock, or other hazards.

SAFETY PRECAUTIONS

There is always a danger present when using electronic equipment.

Unexpected high voltages can be present at unusual locations in defective equipment and signal distribution systems. Become familiar with the equipment that you are working with and observe the following safety precautions.

- Every precaution has been taken in the design of your product to ensure that it is as safe as possible. However, safe operation depends on you the operator.
- Always be sure your equipment is in good working order. Ensure that all points of connection are secure to the chassis and that protective covers are in place and secured with fasteners.
- Never work alone when working in hazardous conditions. Always have another person close by in case of an accident.
- Always refer to the manual for safe operation. If you have a question about the application or operation email ProCare@Sencore.com
- WARNING – To reduce the risk of fire or electrical shock never allow your equipment to be exposed to water, rain, or high moisture environments. If exposed to a liquid, remove power safely (at the breaker) and send your equipment to be serviced by a qualified technician.
- To reduce the risk of shock the power supply must be connected to a mains socket outlet with a protective earthing connection.
- For the mains plug, the main disconnect should always remain readily accessible and operable.
- When utilizing DC power supply, the power supply MUST be used in conjunction with an over-current protective device rated at 50 V, 5 A, type: Slow-blo, as part of battery-supply circuit.
- To reduce the risk of shock and damage to equipment, it is recommended to ground the unit to the installation's rack, the vehicle's chassis, the battery's negative terminal, and/or earth ground.

⚠Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Package Contents

The following is a list of the items that are included:

1. P-AVN-4 IPMX Transceiver Unit (with protective bag)
2. 5-PIN Terminal Blocks (Phoenix Adapters for bare wire termination)
3. Quick Start Guide

If any of these items were omitted from the packaging, please email ProCare@PlexusAV.com to obtain a replacement.

Table of Contents

Section 1 Overview

Introduction

This section includes the following topics:

1.1 Product Introduction

The P-AVN-4 IPMX transceiver is a premium AV over IP appliance that uses open standards for video and audio distribution. The unit can be deployed as a standalone device using the local web-interface, or controlled remotely by plexusAV Visual Array management system. P-AVN-4 is designed for PoE+ power provided from IT switch by default. A DC adapter for traditional 120/240V outlet power is available as an additional accessory.

HDMI Input/Output Interfaces

- HDMI certified up to 4K60 resolutions (HDMI 2.1)
- HDCP certified up to 2.3 specification
- HDR10 Pass-Through
- Dolby Surround Sound Pass-through
- EDID Advances Settings (import/export/custom)
- CEC Consumer Electronic Control*

Network Interfaces

Eth1 (PoE+) RJ45 1Gbps Ethernet Port

Default interface for web-UI, power, and AV

Eth2 RJ45 1Gbps Ethernet Port

Additional network port for data separation (no PoE+ power)

SFP 1Gbps Network Port

1Gbps SFP Module for fiber connections
Supports 850nm multi-mode, and 1310nm single-mode fiber connections

USB-C Input/Output Interfaces

- **Front Panel USB-C**:
  - USB-C (1) and USB-C (2) Ports
  - In Decoder Mode:
    - Peripheral Input (Keyboard, Mouse, Webcam devices supported)
    - USB 2.0 480Mbps maximum USB-over-IP bandwidth
  - Can use passive USB-C to USB-A adapter for traditional wiring

- **Rear Panel USB-C**:
  - USB-C (C) Port
  - Encoder Mode: accepts USB-C video input
    - Does not provide power to the laptop / HDMI source device
  - HDCP certified up to HDCP 2.3 specification
  - USB-over-IP Data connection (wires to PC/Computer)

5-PIN Phoenix Terminals

- Audio (Analog Balanced/Unbalanced Stereo Pair)
  - Analog Audio Input from mixer / audio system
  - P-AVN-4 encodes analog audio into IPMX (PCM/AES-64)
- Serial (RS232)
  - Input/Output serial communication over IP

Infra-Red (IR) Input/Output Interface*

- Front Panel IR Input / Output Ports
- 3.5mm Mini-jack

Video and Audio Codecs

- Video: JPEG XS, JPEG XS FIP, H.264, HEVC
- Audio: PCM, DOLBY DIGITAL, AES-67, Dante

Management

- Web UI: local https:// web-interface
- External Control: HTTPS API (GraphQL)
- Plexus Visual Array: IPMX / NMOS and API Control
- NMOS Support: IS-04 and IS-05

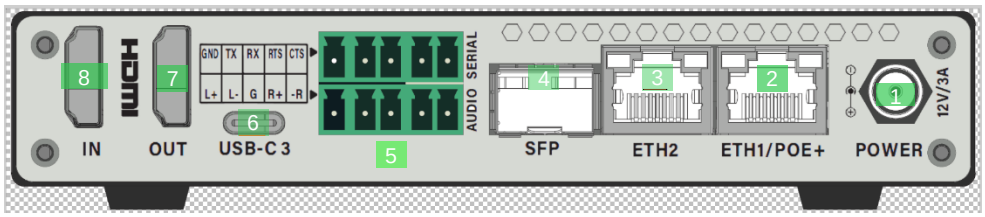
Physical Dimensions and Power Consumption

- Size: 162 mm x143mm x26 mm (6.37”” x 5.63””x 1,02””)
- Weight: 1.3 lbs. (0.6kg)
- Power: 12V DC / 3A
  - Supplies: 1x External power supply (sold separately)
    Link to accessories

1.2 Front Panel Overview

1. Factory Reset Button
2. USB-C (Port 2) peripheral input (Keyboard/Mouse/Webcam)
3. USB-C (Port 1) peripheral input (Keyboard/Mouse/Webcam)
4. IR Output 3.5mm Mini-jack
5. IR Input 3.5mm Mini-jack
6. Front Panel Display (Color Matrix / LCD unit information)
7. Status Light Indicator
8. Power Light Indicator

1.3 Rear Panel Overview



1. 12V/3A DC Locking Power Connector (adapter sold separately)
2. RJ-45/POE+ 10/100/1000 Auto-Negotiating
3. RJ-45 10/100/1000 Auto-Negotiating
4. 1GB SFP 10/100/1000 Auto-Negotiating
5. 5-Pin Phoenix Plug
6. USB-C (Port 3) Video/ALT Video Input + USB Data connection to computer
7. HDMI output HDMI2.1/HDCP 2.3/HDR10
8. HDMI input HDMI2.1/HDCP 2.3/HDR10

Section 2 Installation

Introduction

This section includes the following topics:

2.1 Rack Installation

The P-AVN-4 IPMX transceiver can operate as a stand-alone device or be secured into a standard equipment rack. Rackmount accessories include**:**

P-AVN-M-1RU – 1RU Shelf part number
Holds three P-AVN-4 units side by side in 1RU rack height
Includes screws to attach P-AVN-4 chassis security to 1RU shelf

Units sit horizontally side by side in 1RU width

P-AVN-M-4RU-KIT -- 4RU Cage Bracket part number
Accommodates up to 14x P-AVN-4 units
Units sit vertically side by side

Kit includes rack ears and blank plates for 0-14 unit configuration

2.2 Power Connection

The PlexusAV P-AVN-4 operates on Power over Ethernet Plus (PoE+) technology, necessitating compatibility with an Ethernet switch that supports PoE+. Alternatively, it can be powered using a 12V DC/3A power supply with locking connector, which is available for purchase separately. The power supply itself is auto-ranging for 110/240V operation and has several part numbers to include the correct outlet/PIN configuration for your country/region.

P-AVN-PSU-TYPE-A-US – US, Canada, Mexico, China
P-AVN-PSU-TYPE-C-EU – Europe, South America, Asia
P-AVN-PSU-TYPE-G-UK – UK, Malaysia, Singapore
P-AVN-PSU-TYPE-I-AUS – Australia, New Zealand, Argentina

2.3 Maintenance

The PlexusAV P-AVN-4 is a maintenance-free piece of equipment. Standard product warranty is 3 years from date of purchase. There are no user-serviceable parts on the inside of the unit. Product Support is available free of charge, please send an email request to one of our Plexus Pro Care members (ProCare@plexusAV.com) and provide details of issue or support needed.

2.4 Network Setup

1. Initial Check: Ensure the P-AVN-4 is powered on and properly connected to your network infrastructure via Ethernet cable.
2. Use front panel to identify DHCP address received by network. If no DHCP sever is present the front-panel will default to a unique IPv4 APIPA address starting in 169.254.X.Y range. This address shown for Eth1 can be used to reach the web-interface once the user-computer is configured for the same subnet.
3. Access Device: Using a web-browser, enter the IP of Eth1 into the URL/address bar. The browser should negotiate the URL into https://192.168.1.X/login address showing a username and password field.

The browser security settings may prompt for an allow/accept to access this page.

4. Default Login Credentials: out of the box and after factory reset
   User: **admin**
   Password: **proav101**

For additional information on the initial network configuration menu see the PlexusAV P-AVN-4 Quick-Guide documentation

Section 3 Web-Interface Operation

Introduction

This section includes the following topics:

3.1 Logging into the P-AVN-4 Web Interface

To open the P-AVN-4 web interface use one of the following supported browsers and navigate to the unit's IP address:

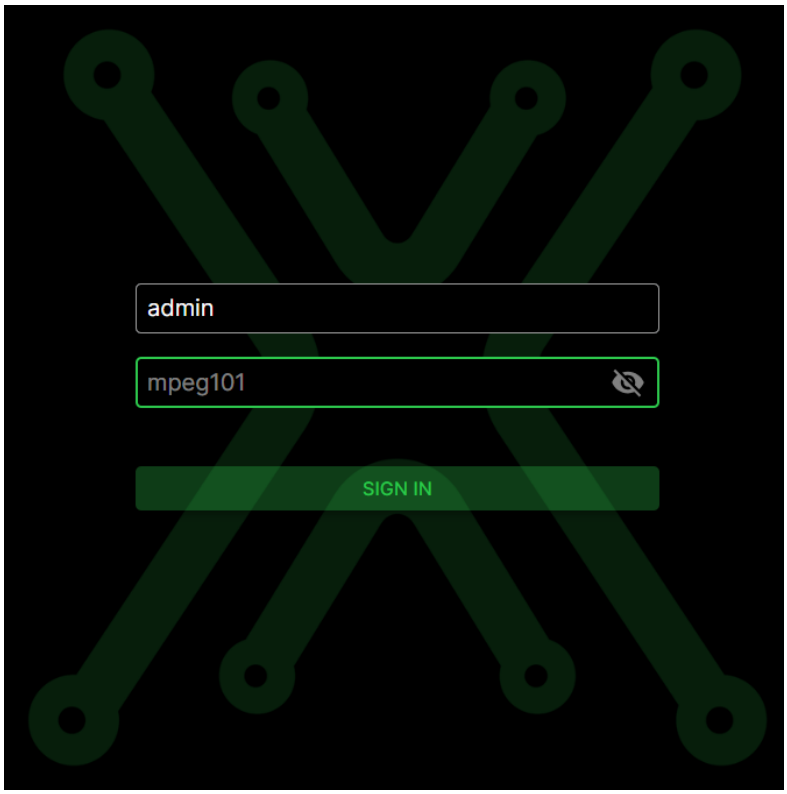
- Internet Explorer 7 & above
- Firefox 3.5 & above
- Google Chrome
- Microsoft Edge

The user will need to login to the web interface. Press the login button to login to the web interface.

Default Credentials

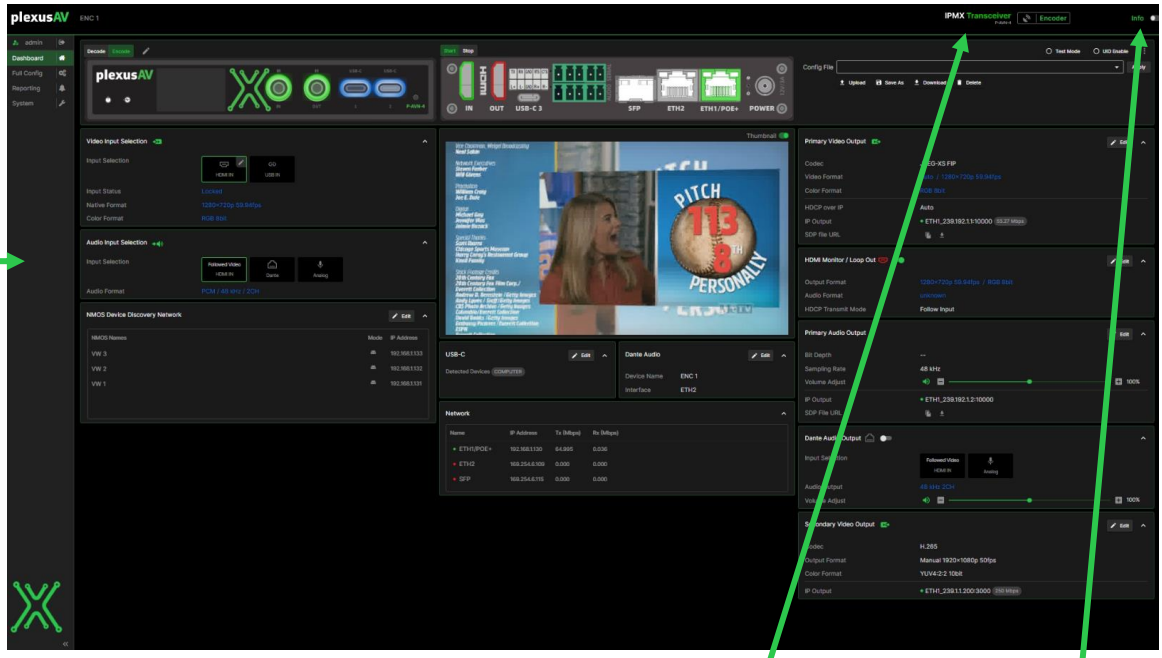
Username: admin

Password: proav101



Login Prompt

3.2 Header Information

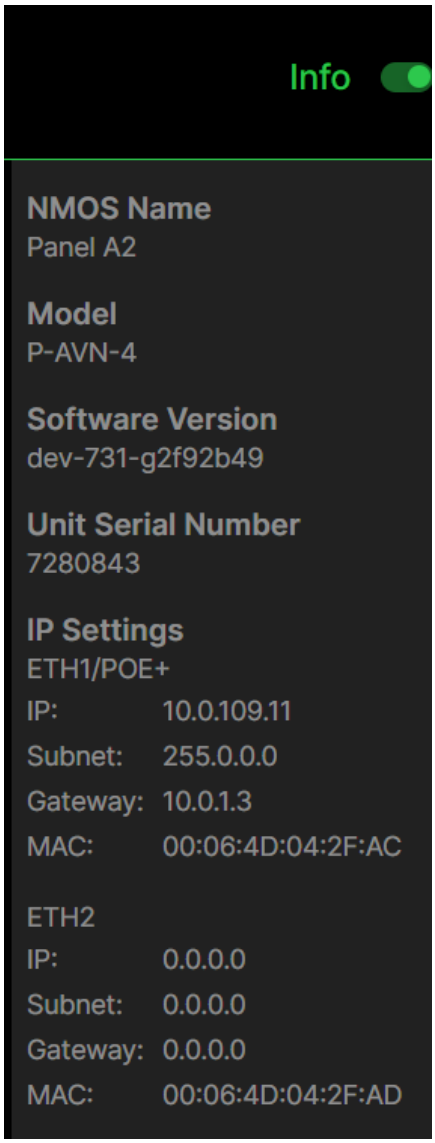


The header lets you see if the P-AVN-4 is configured for Decoder or Encoder mode immediately.

The NavPane contains pages to enable the Dashboard, Full Config, Reporting and System Views

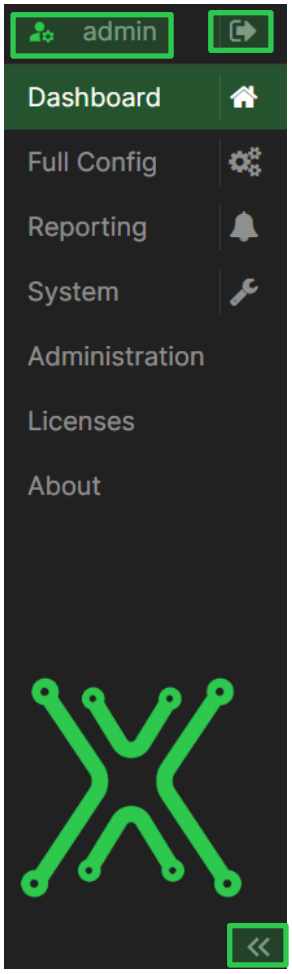
The info toggle allows you to view important information regardless of location.

Info Expanded



3.3 Navigation Pane

The navigation pane is the tab used for moving around the P-AVN-4 interface. The web interface provides complete control of unit configuration and process monitoring. After logging into the unit, the default page is Dashboard, which provides configuration settings needed for most applications.



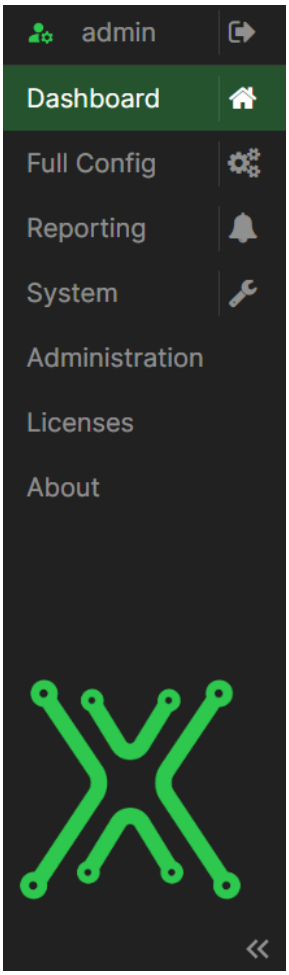
Navigation Pane

Where admin is indicated, this shows which User is logged into the GUI.

The logout icon, , allows the currently signed-in user to log out.

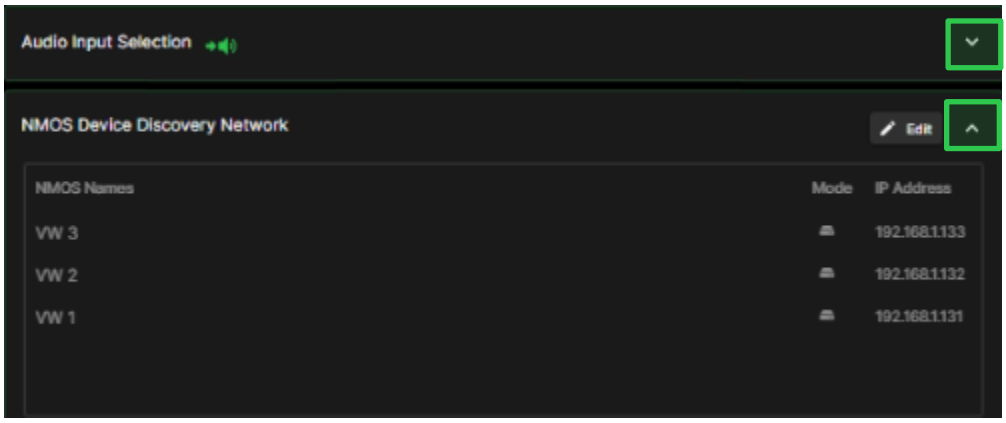
The « and » icons can expand or collapse the “Navigation Pane”

Expanded Navigation Pane

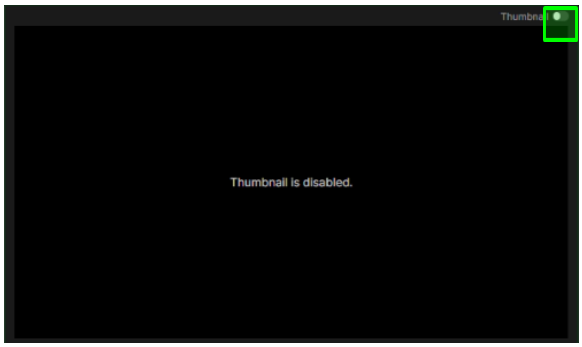


Collapsed Navigation Pane

The, ^ , ˇ , are used to expand and collapse options and widgets.



The,  ,  , icons are used to enable and disable options and widgets.

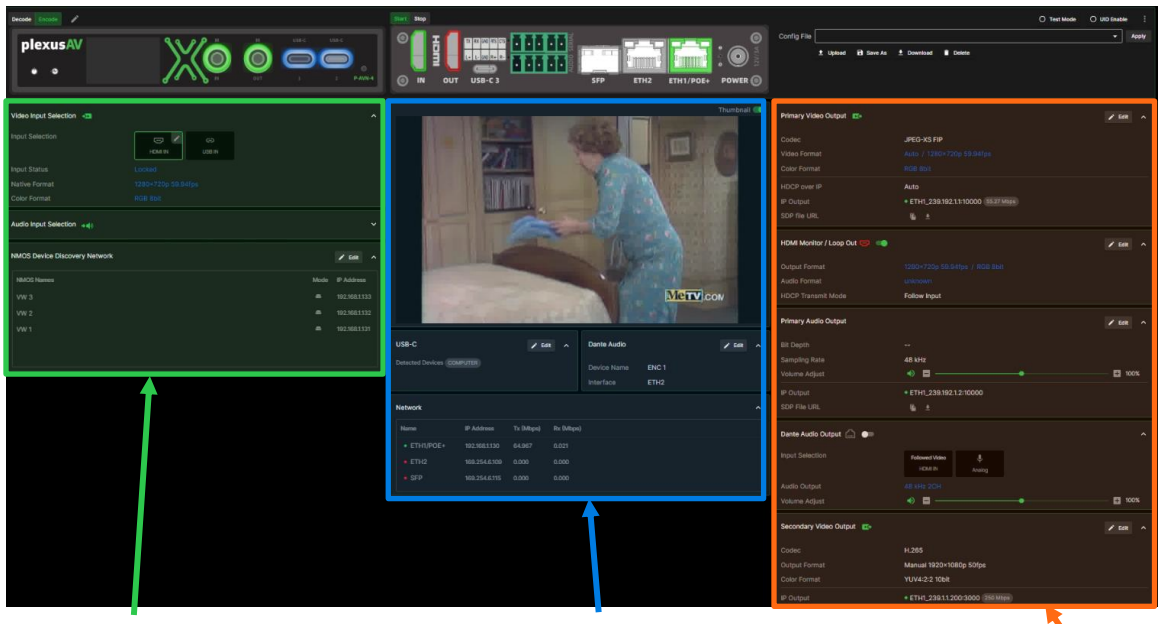


Within the Navigation Pane, the different pages available are:

Control Panel	Description
Dashboard	This control panel is where the device is configured for encode/decode functionality with user-friendly widgets.
Full Config	This control panel can be used to configure the device without widgets or enable addition widgets on the Dashboard.
Reporting	This control panel is where alarms & logs are reported, configured, and maintained
System	This control panel is where unit hardware and administrative settings will be configured and monitored. Software and unit details are also shown under this panel
Administration	This control panel gives access to device settings. Access given: Date/Time, Network, SSH Tunnels, Security
Licenses	This control panel shows licenses applied and allows the application of new license key
About	This control panel shows the software version, serial number, support, and third-party information

3.4 Dashboard

The Dashboard page serves as the central interface for managing and adjusting settings in both the encoder and decoder modes of the P-AVN-4 device. It provides convenient access to a comprehensive range of configuration options.



The left-hand side of the contains widgets for input

The middle includes widgets for processing and data

The right-hand side contains widgets for output

Section 4 Control Panels

Introduction

This section includes information on the following pages in Navigation Pane:

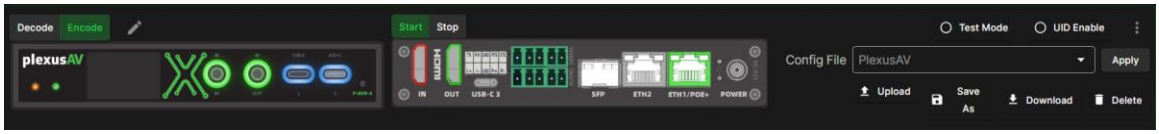
4.1 Dashboard

The Dashboard window allows the Encoder/Decoder configuration with friendly widgets for easy user control. Additional widgets can be enabled under the Full Config section.

Dashboard Panel

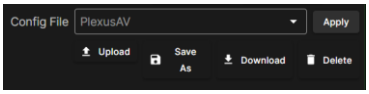
4.1.1 Main Configuration

The main configuration encompasses the primary settings and options available within the system, providing users with control over fundamental aspects of its operation and behavior.



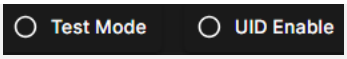
Main Configuration Pannel

Option	Description
	Allows change between Encode or Decode, enter unique text description for the device.
	Allows Start or Stop of transmission. Virtual display of the rear of the device and active ports



The P-AVN-4 can save all configured settings to multiple configured files. Configured files can be saved locally and saved to external storage to be used on other P-AVN-4.

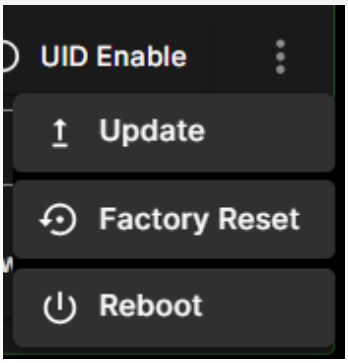
Configured files can be used to quickly and easily change the configuration of a P-AVN-4 to suit different encoding and decoding requirements.



Enable or Disable Test Mode or UID

Test Mode will send color bars, so a video source is not required. When in Encode mode it sends out uncompressed video source over the interface. When in Decode mode it sends out over the HDMI output

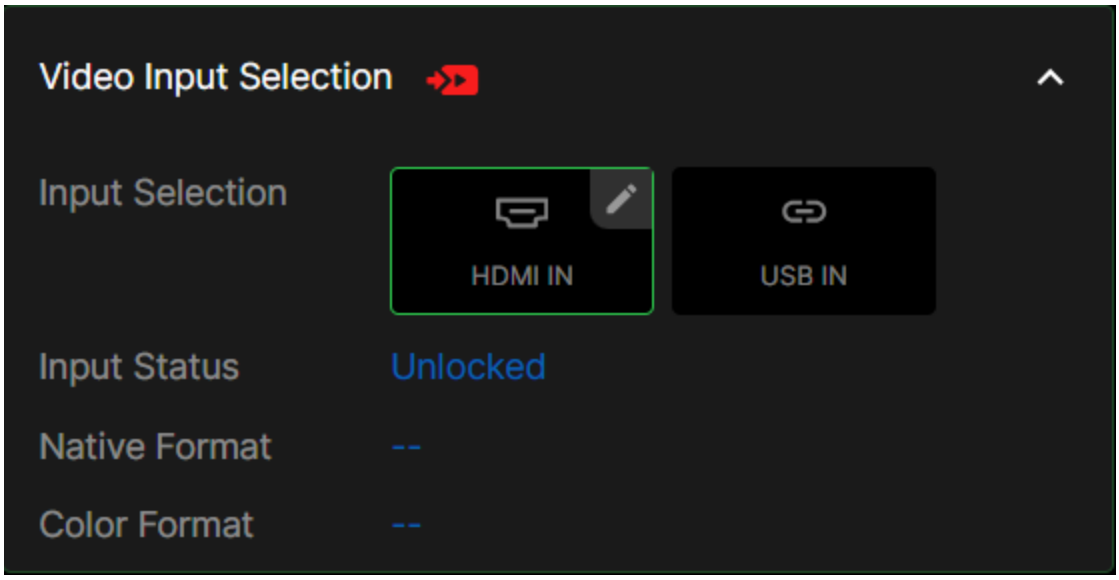
UID will flash the indicator light on the front of the unit for easy recognition



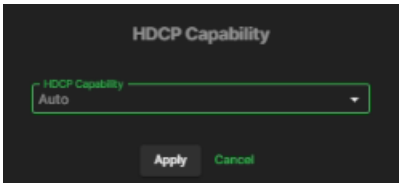
Update the unit, perform Factory Reset, and Reboot device from the Dashboard

4.1.2 Video Input Selection

Video Input Selection is utilized to select the input source along with providing information on the input source. Selecting HDMI IN or USB IN will highlight the input with a green border. The pencil icon is used to change compatibility.



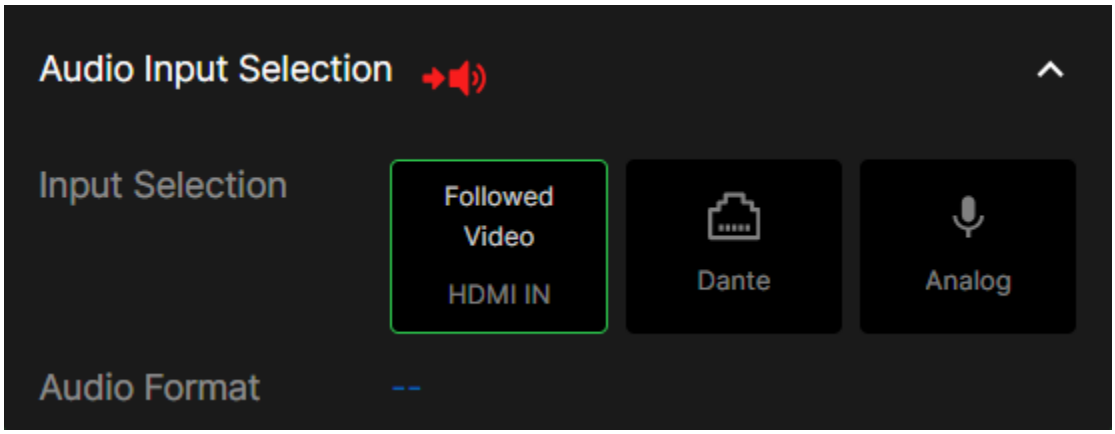
Video Input Selection Pane



Pencil Selection

4.1.3 Audio Input Selection

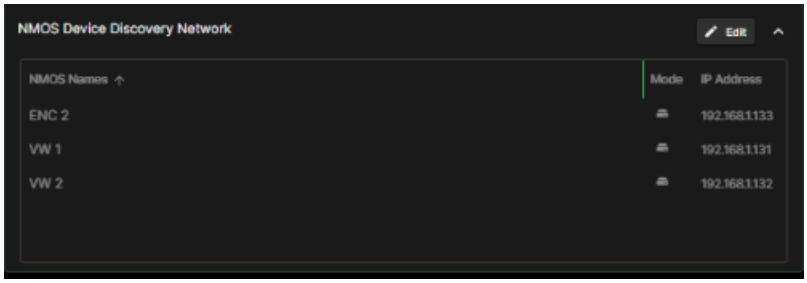
Audio Input Selection is utilized to select the input source along with providing information on the input source. Followed Video follows the audio from the HDMI IN. Dante IP, stereo signal only, allows you to choose your audio from your Dante server, allowing separate audio to play with your video. Analog allows you to use audio from your 5 pin Phoenix plug.



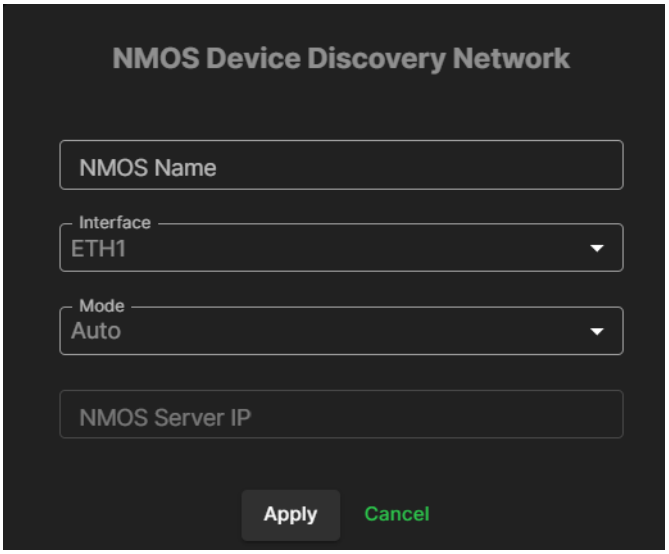
Audio Input Selection Pane

4.1.4 NMOS Discovery Network

NMOS Discovery Network is utilized to display devices available sharing the same network assignment of the device. Edit allows the mode and interface to change the NMOS Device name, which interface to use, and the detection mode. When in manual mode you can choose between different NMOS servers that are available.



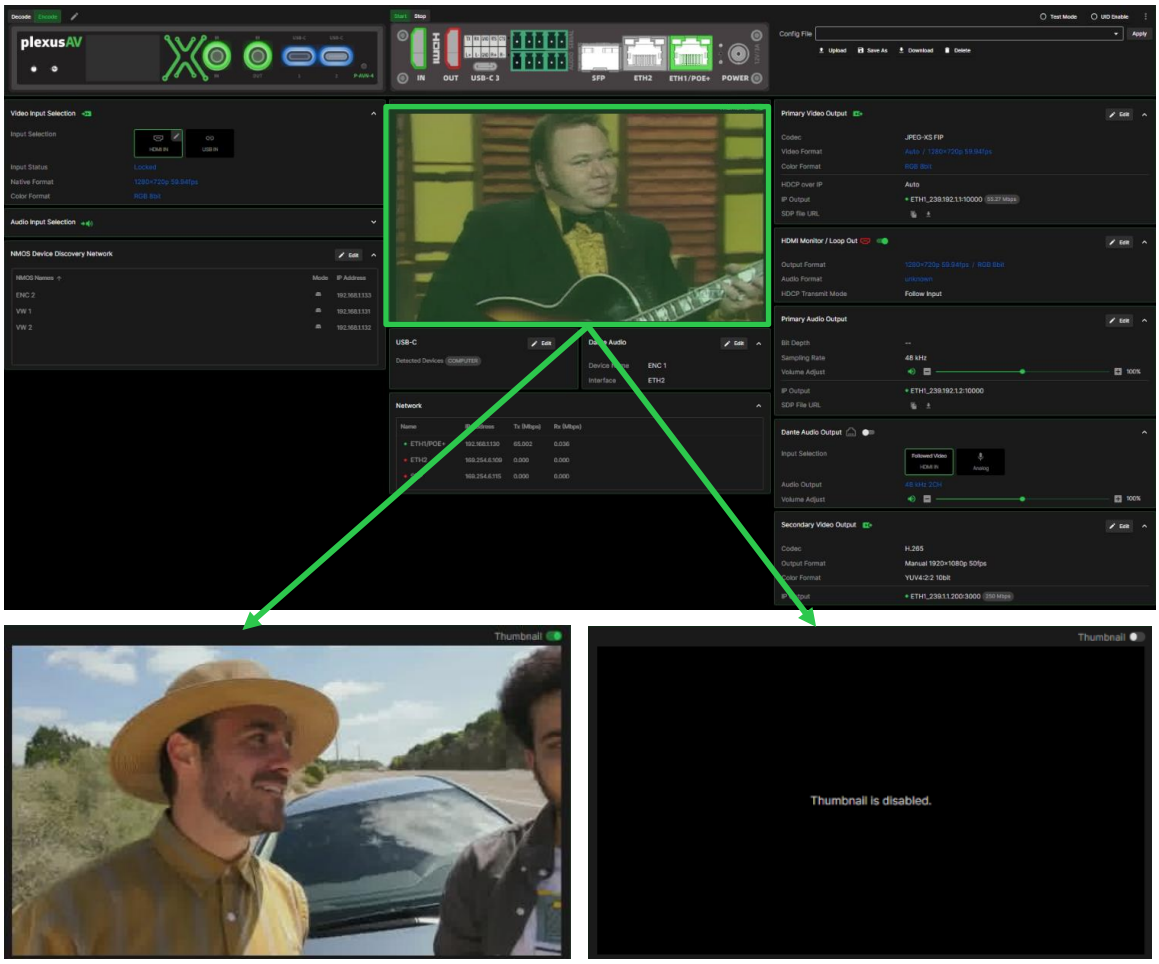
NMOS Discovery Network Pane



NMOS Edit Window

4.1.5 Video Preview Panel

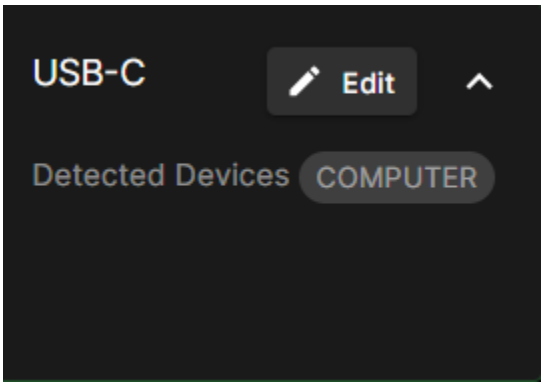
The Video Preview Panel can view a preview of the input.



Video Preview Panel

4.1.6 USB-C Panel

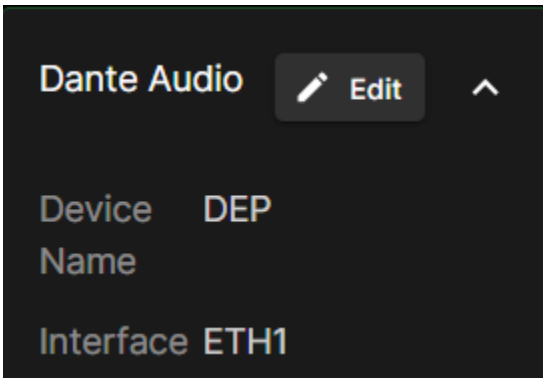
The USB-C panel can view the connected USB-C Device. USB-C 1 and 2 are used for keyboard, mouse, and webcam connections. USB-C 3 rear port is used to connect to a computer.



USB-C Panel

4.1.7 Dante Audio Panel

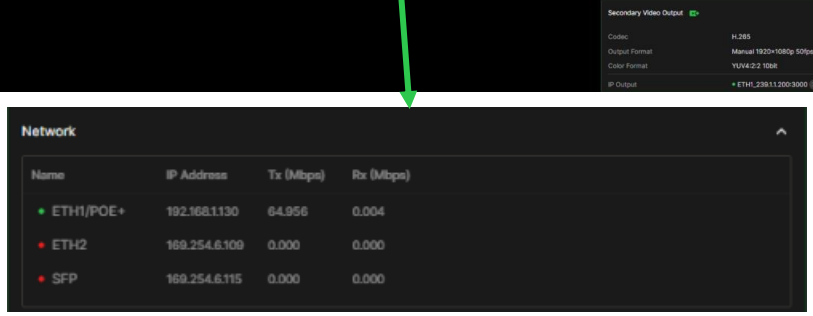
The P-AVN-4 transceiver has a Dante audio license and capability to input or output a stereo audio signal over IP. A 3rd party Dante controller can detect the P-AVN-4 using the Dante Device name configured here. Dante IP can be used as an input to the encoder or embedded into the Decoder output.



Dante Audio Panel

4.1.8 Network Preview Panel

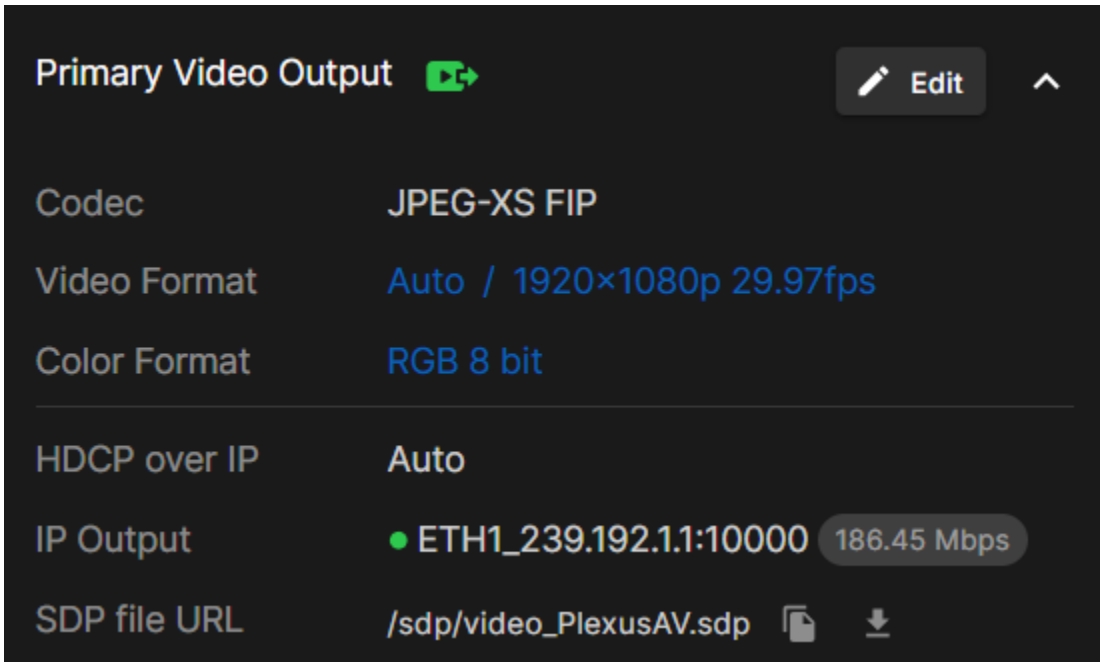
The Network Preview Panel displays network status, transfer and receive speeds.



Network Preview Panel

4.1.9 Primary Video Output Panel

The Primary Video Output pane displays important output information. This setting is editable for easy change.



Primary Video Output Panel

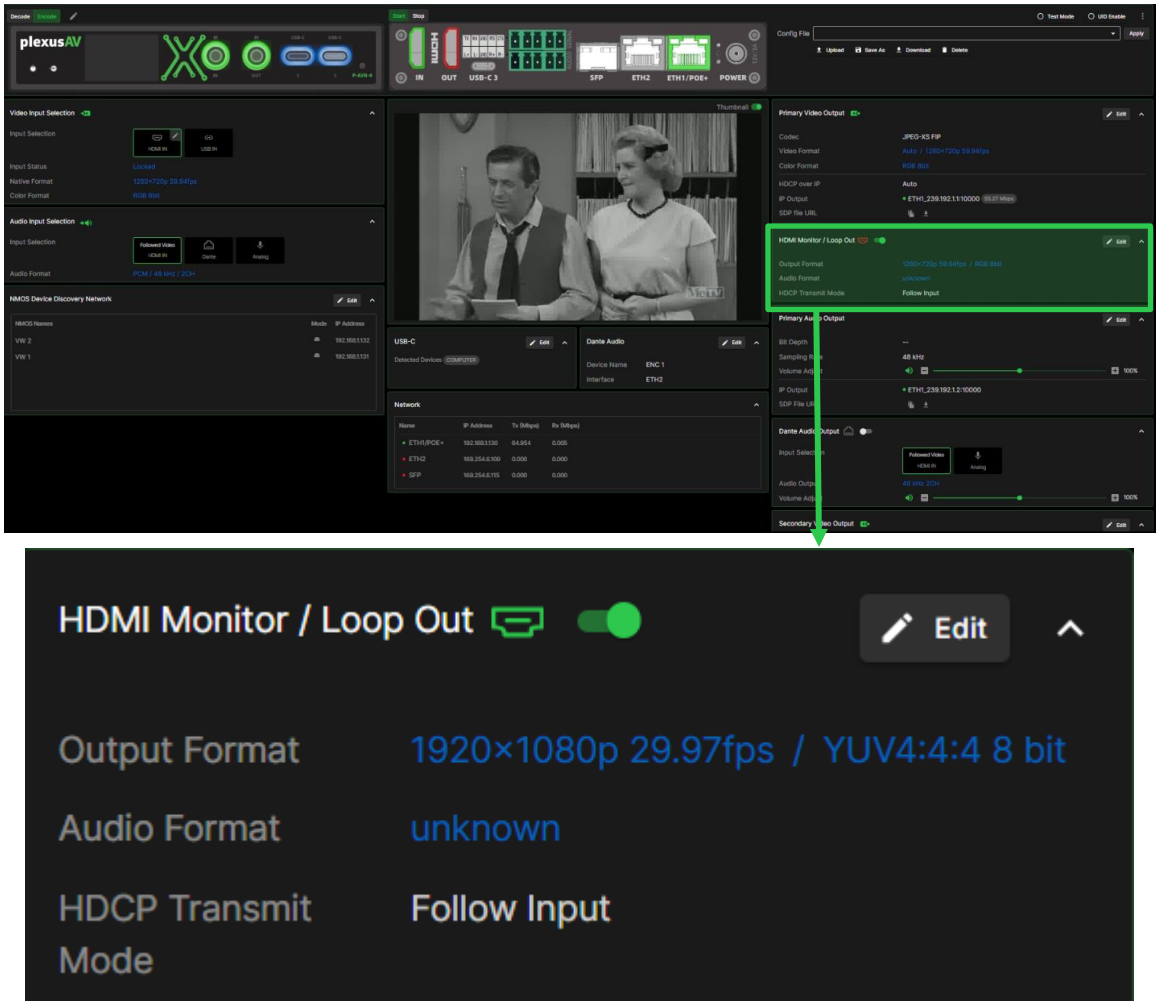
Primary Video Output Edit Window

Settings	Range	Description
Codec	JPEG XS / FIP	Allows users to use JPEG XS or FIP Codecs JPEG-XS is optimized for full screen video FIP has additional processing to improve signage content, productivity and conference applications with higher quality video
Bitrate	Economy Mode Balanced High Quality Manual	Allows users to select Bitrate from pre-determined modes or manually select BPP.
BPP (Bits Per Pixel)	0.5 – 4.0	Allows users to set the number of Bits Per Pixel. Manual Bitrate must be selected.

Output Format	Auto / Manual 4K UHD 3840x2160p Full HD 1920x1080p HD Ready 1280x720p	Allows users to select Format Mode between Auto or Manual. In Manual mode, users can select the video resolution and frame rate
Aspect Ratio Mode	Maintain Aspect Ratio Stretch	Keep the original aspect ratio or stretch to fit display
Color Format	RGB / YUV4:2:2	Users can select from RGB 8-bit or YUV4:2:2 12-bit color depth.
Interface	ETH1, ETH2, SFP	Choose interface for output.
IP Address	Four decimal octets: XXX.XXX.XXX.XXX	Defines the Source IP address to be assigned to the output stream
Port	0 - 65535	Defines the source IP port to be assigned to the output stream

4.1.10 HDMI Monitor / Loop Out Panel

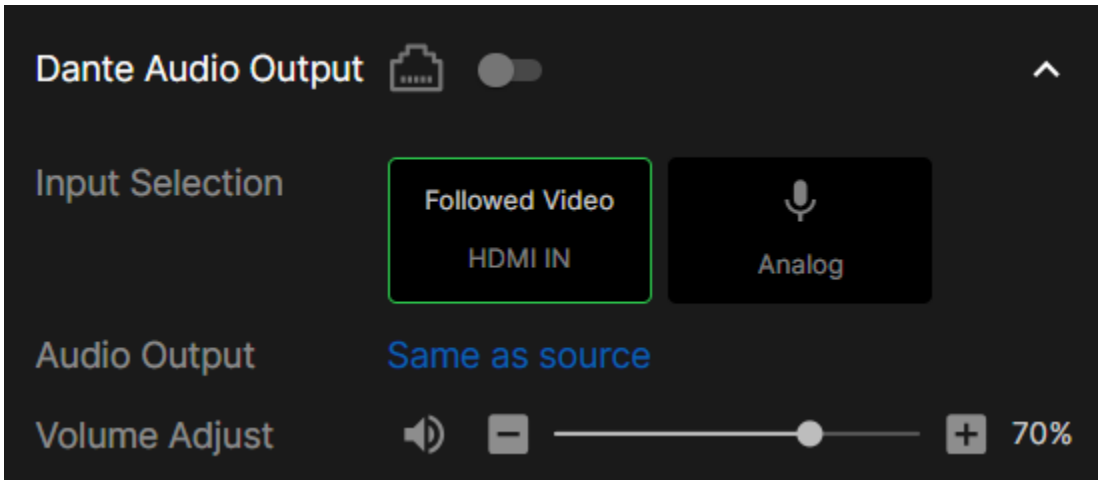
HDMI Monitor / Loop Out/In enables the ability to display your input feed for monitoring purposes. In Encoder mode this allows you to monitor the source input prior to IPMX IP output. In decoder mode it allows you to loop in content when not receiving an IPMX IP input.



HDMI Monitor / Loop Out Panel

4.1.11 Dante Audio Output Panel

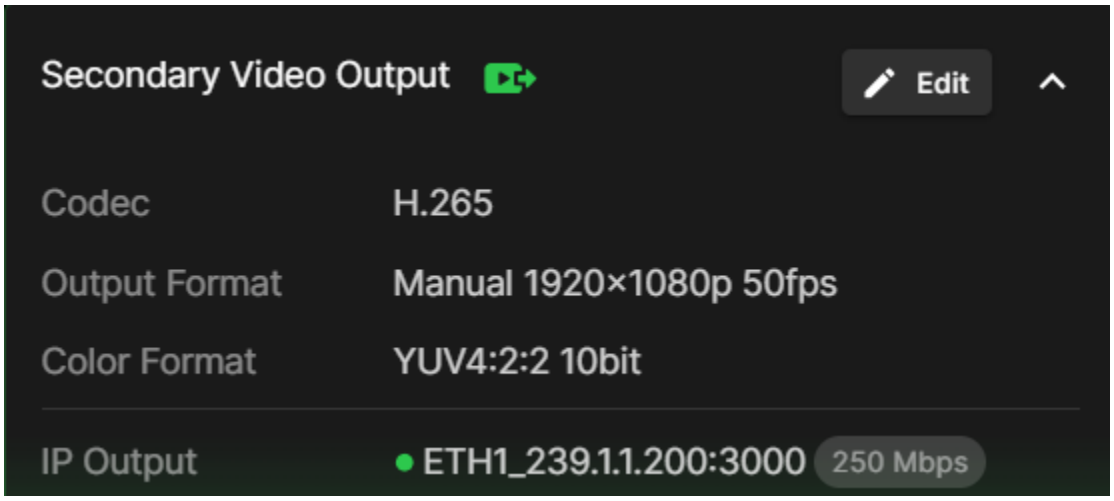
Enable or Disable Dante Audio Output and choose the input selection to use along with setting the Volume level



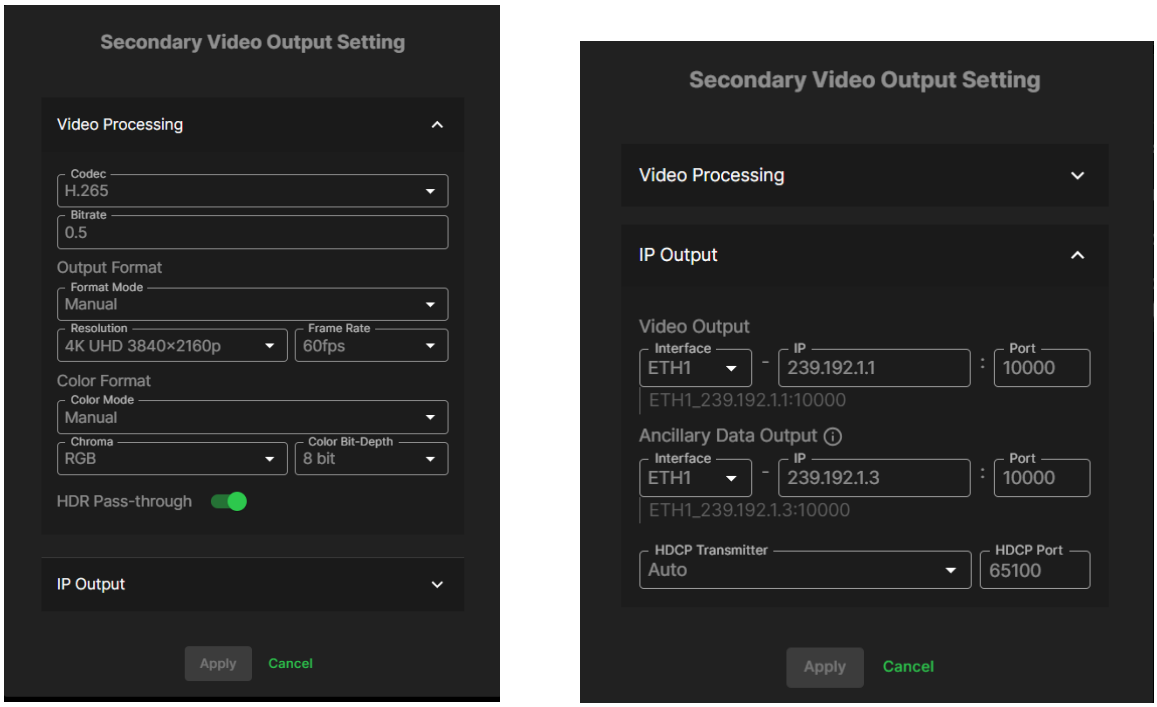
Dante Audio Output Panel

4.1.12 Secondary Video Output Panel [Encoder Mode Only]

Secondary Video enables users to activate an parallel AV output using HEVC or H.264 video codecs, providing supplementary visual information with a lower bitrate stream. It is compatible with our Stream Conversion Gateway for conventional broadcast over IP protocols.



Secondary Video Output Panel



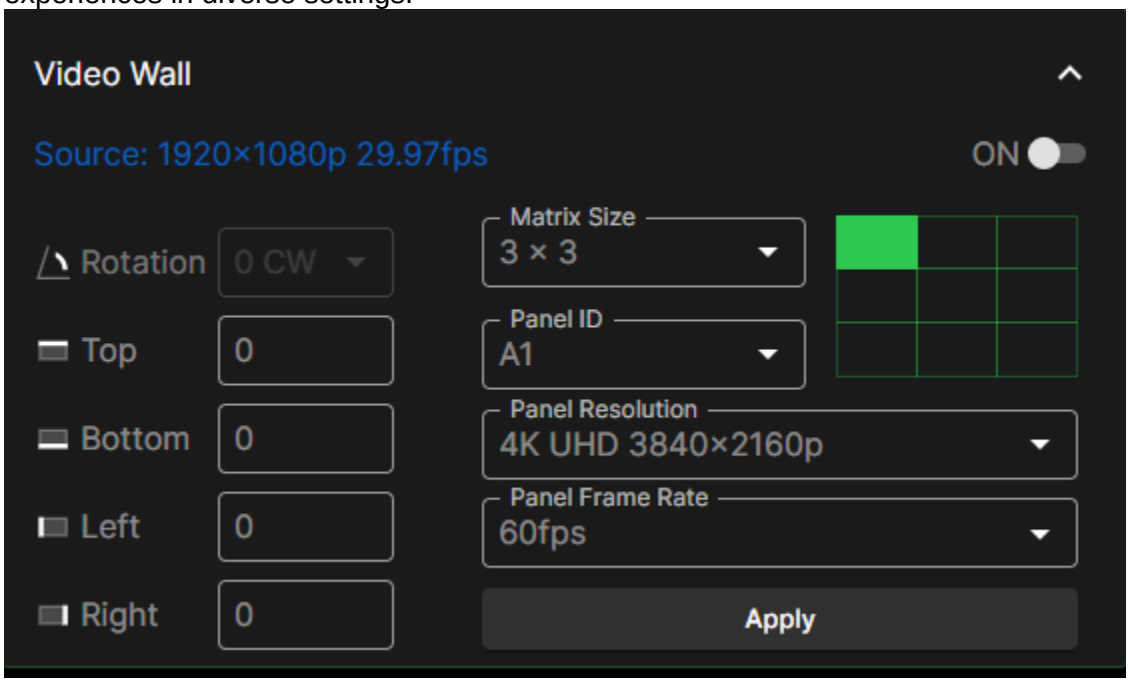
Secondary Video Output Edit Window

Settings	Range	Description
Codec	H.264 / H.265	Allows users to use H.264 or H.265 Codecs
Format Mode	Auto / Manual 4K UHD 3840x2160p Full HD 1920x1080p HD Ready 1280x720p	Allows users to select Format Mode between Auto or Manual. In Manual mode, users can select the video resolution and frame rate
Color Depth	RGB / YUV4:2:2	Users can select from RGB 8-bit or YUV4:2:2 12-bit color depth.
Bitrate(Mbps)	User selectable	Set the Bitrate for Secondary Video
HDR Pass-through	Enable / Disable	Enable or Disable HDR Pass-through.
Interface	ETH1, ETH2, SFP	Choose interface for output.
IP Address	Four decimal octets: XXX.XXX.XXX.XXX	Defines the Source IP address to be assigned to the output stream
Port	0 - 65535	Defines the source IP port to be assigned to the output stream

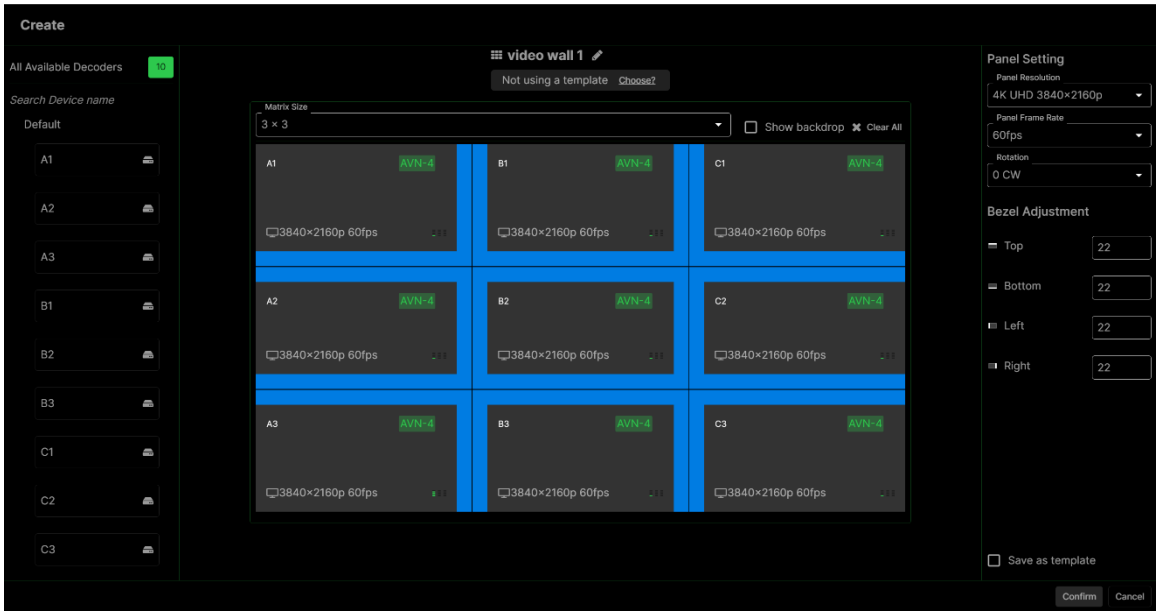
In general, ^ , v ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

4.1.13 Video Wall

The Video Wall feature seamlessly integrates multiple screens for dynamic content delivery, offering advanced control and synchronization options for impactful visual experiences in diverse settings.

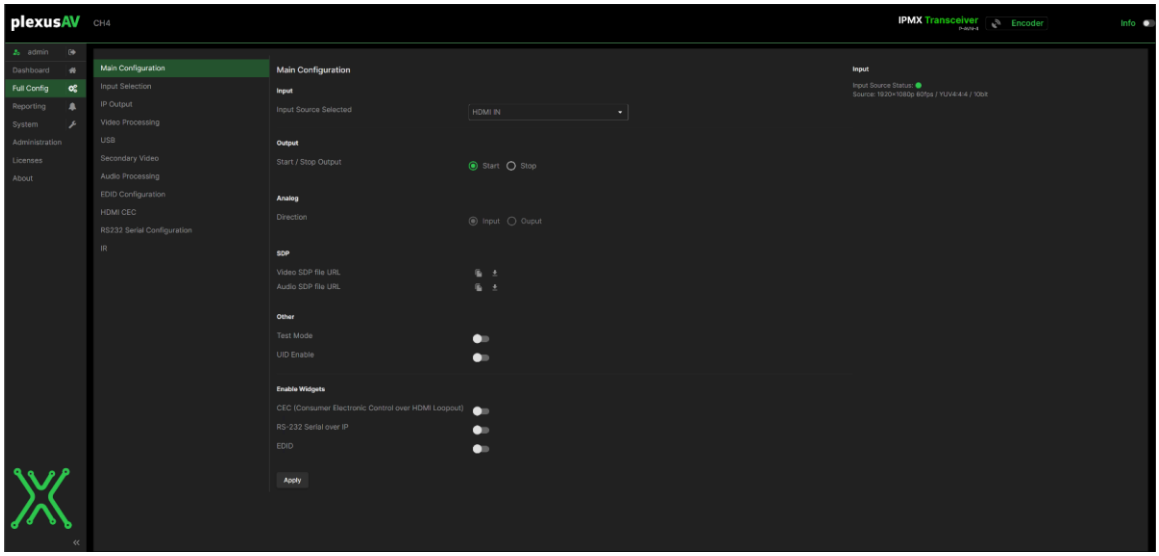


<u>Below image is the Video Wall Configuration Tool – Available in the Visual Array:</u>



4.2 Full Config

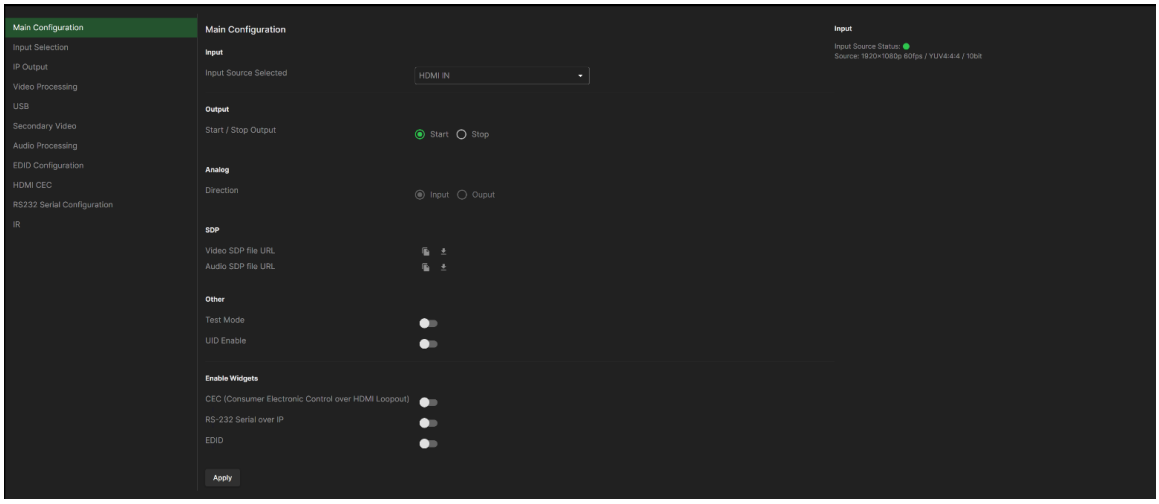
The Full config provides all features available in the dashboard, without widgets, while allowing users to enable additional widgets for enhanced customization and functionality.



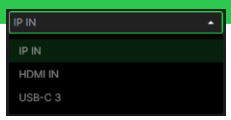
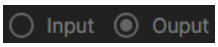
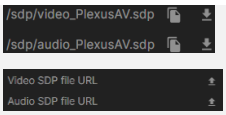
Full Config Panel

4.2.1 Main Configuration

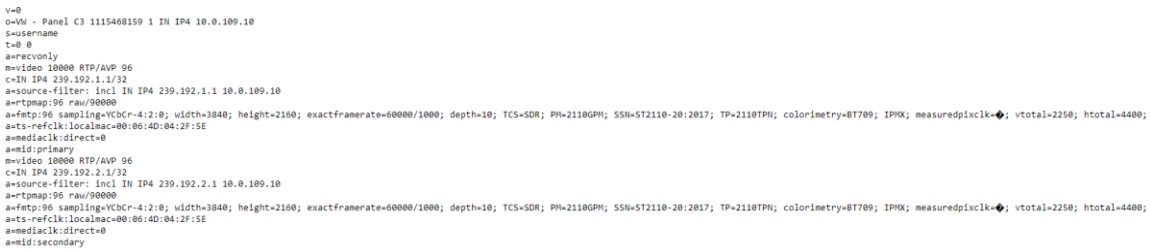
The main configuration encompasses the primary settings and options available within the system, providing users with control over fundamental aspects of its operation and behavior.



Main Configuration Window

Section	Description	Selection	Action
Input	Input Source Selected		Allows choice of source input of the device.
Output	Start / Stop Output		Allows to Start or Stop the Output of the device.
Analog	Direction		Change the direction of the Analog of the device.
SDP	Video SDP file URL Audio SDP file URL		Allows View, Upload, and Download of Video and Audio SDP files.
Other	Test Mode UID Enable		Enable or Disable Test Mode or UID
Enable Widgets	CEC (Consumer Electronic Control over HDMI) RS-232 Serial over IP EDID		Enable or Disable

In Main Configuration,  , Allows you to Upload an SDP Video or Audio file in Decoder Mode to the device.  , Allows you to Download an SDP Video or Audio file in Encoder Mode from the device.  , Allows you to View an SDP Video or Audio File on the device. The, ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

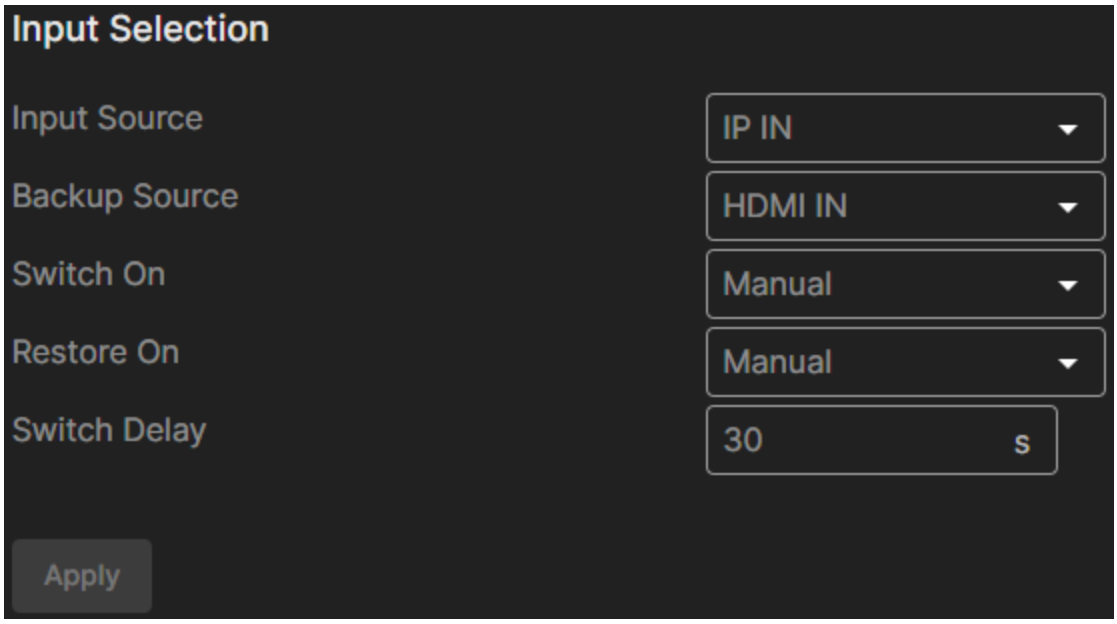


SDP File View window

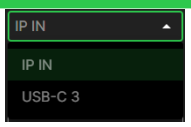
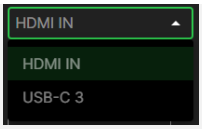
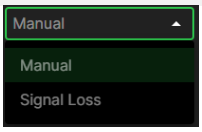
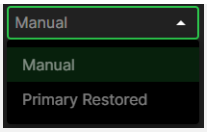
Note: In encode or decode modes, the options within the main configuration may vary, tailored to each mode's specific requirements and functionalities.

4.2.2 Input Selection

Input selection is utilized to designate primary, backup, failover, restore, and delay options, providing users with flexibility in managing their input sources.



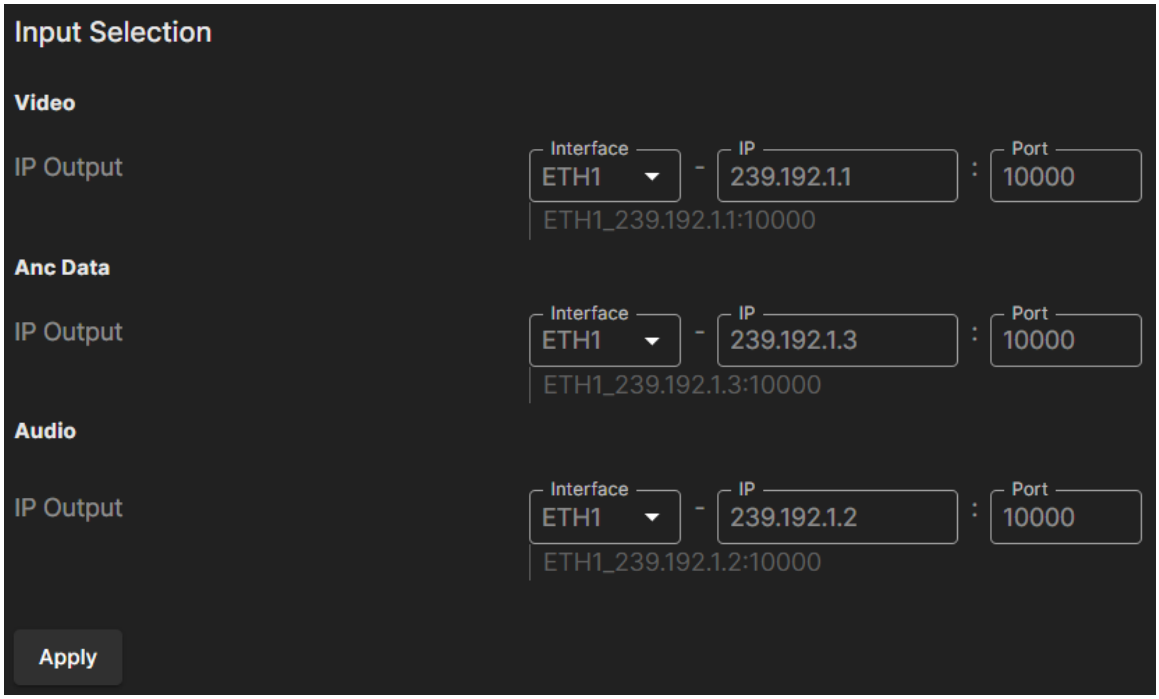
Input Selection Window

Name	Option	Description
Input Source		Allows choice of Primary source input of the device. If a source is already in use as backup it will not be available.
Backup Source		Allows choice of Backup source input of the device. If a source is already in use as primary it will not be available.
Switch On		Manual switchover allows the switch between Primary and Backup Inputs. Signal Loss will automatically switch upon loss of Primary source input.
Restore On		Manual switchover allows the switch between Primary and Backup Inputs. Primary Restored will automatically switch upon return of Primary source input.
Switch Delay		Sets the delay to wait after the Input Source is disrupted before switching to the Backup Source.

The, ^, and ˇ , icons may be used throughout the control panels to collapse, and expand menus similarly.

4.2.3 IP Output

The IP Output selection window allows users to configure the ethernet interface, IP address, and Port assignment for the Video, ANC (ancillary data), and audio output on the device. This section is not available in Decode Mode.

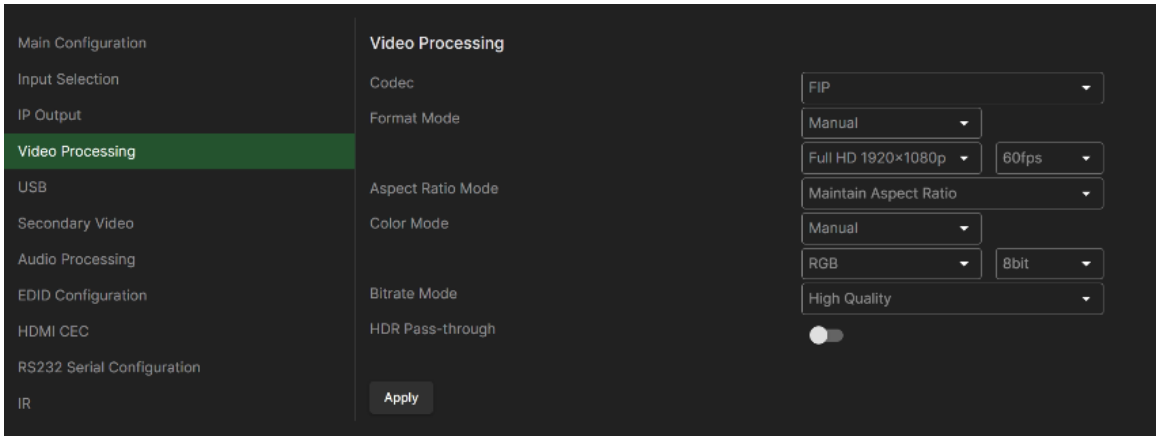


IP Output Window

Settings	Range	Description
Interface	ETH1, ETH2, SFP	Choose interface for output.
IP Address	Four decimal octets: XXX.XXX.XXX.XXX	Defines the Source IP address to be assigned to the output stream
Port	0 - 65535	Defines the source IP port to be assigned to the output stream

4.2.4 Video Processing

The Video Processing section, users can configure settings such as the codec, format mode, color depth, bitrate, Bits per Pixel, and HDR pass-through, providing control over various aspects of video processing and quality.



Video Processing Window

Setting	Range	Description
Codec	JPEG XS / FIP	Allows users to use JPEG XS or FIP Codecs
Format Mode	Auto / Manual	Allows users to select Format Mode between Auto or Manual
	4K UHD 3840x2160p Full HD 1920x1080p HD Ready 1280x720p	In Manual mode, users can select the video resolution and frame rate
Aspect Ratio Mode	Maintain Aspect Ratio / Stretch	Keep the original aspect ratio or stretch to fit display
Color Depth	Auto / Manual	Allows users to select Color Depth between Auto or Manual
	RGB / YUV4:2:2	In Manual mode, users can select from RGB 8-bit or YUV4:2:2 12-bit color depth.
Bitrate	Economy Mode, Balanced, High Quality, Manual	Allows users to select Bitrate from pre-determined modes or manually select BPP.
BPP (Bits Per Pixel)	0.5 – 4.0	Allows users to set the number of Bits Per Pixel. Manual Bitrate must be selected.
HDR Pass-through	Enable / Disable	Enable or Disable HDR Pass-through.

In general, ^ , v ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

4.2.5 USB

USB Settings Window

4.2.6 Secondary Video

Secondary Video enables users to activate an additional video feed for monitoring purposes, providing supplementary visual information.

Secondary Video Window

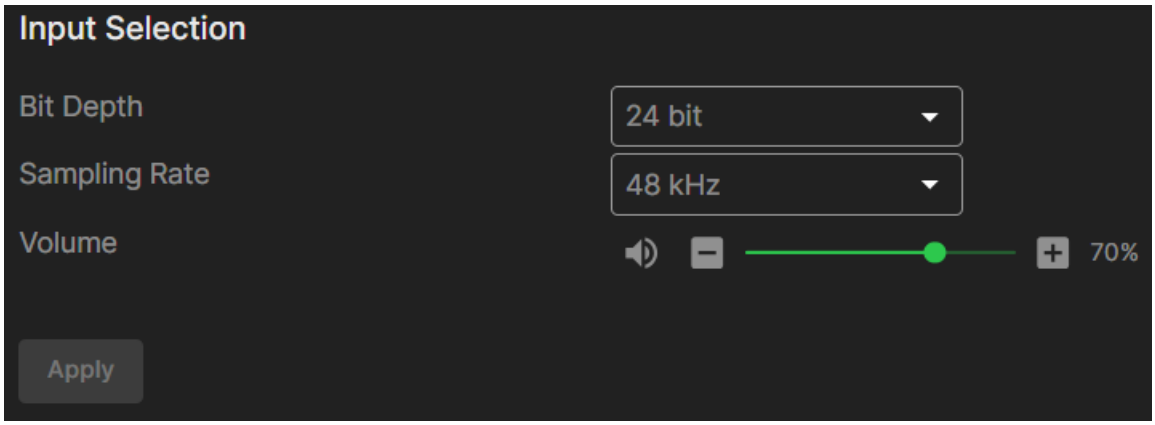
Settings	Range	Description
Codec	H.264 / H.265	Allows users to use H.264 or H.265 Codecs
Format Mode	Auto / Manual 4K UHD 3840x2160p Full HD 1920x1080p HD Ready 1280x720p	Allows users to select Format Mode between Auto or Manual. In Manual mode, users can select the video resolution and frame rate
Color Depth	RGB / YUV4:2:2	Users can select from RGB 8-bit or YUV4:2:2 12-bit color depth.
Bitrate(Mbps)	User selectable	Set the Bitrate for Secondary Video

HDR Pass-through	Enable / Disable	Enable or Disable HDR Pass-through.

In general, ^ , v ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

4.2.7 Audio Processing

Audio Processing section, users can choose the Bit Depth, Sampling Rate, and Volume settings, granting control over the quality and volume of audio output.



Audio Processing Window

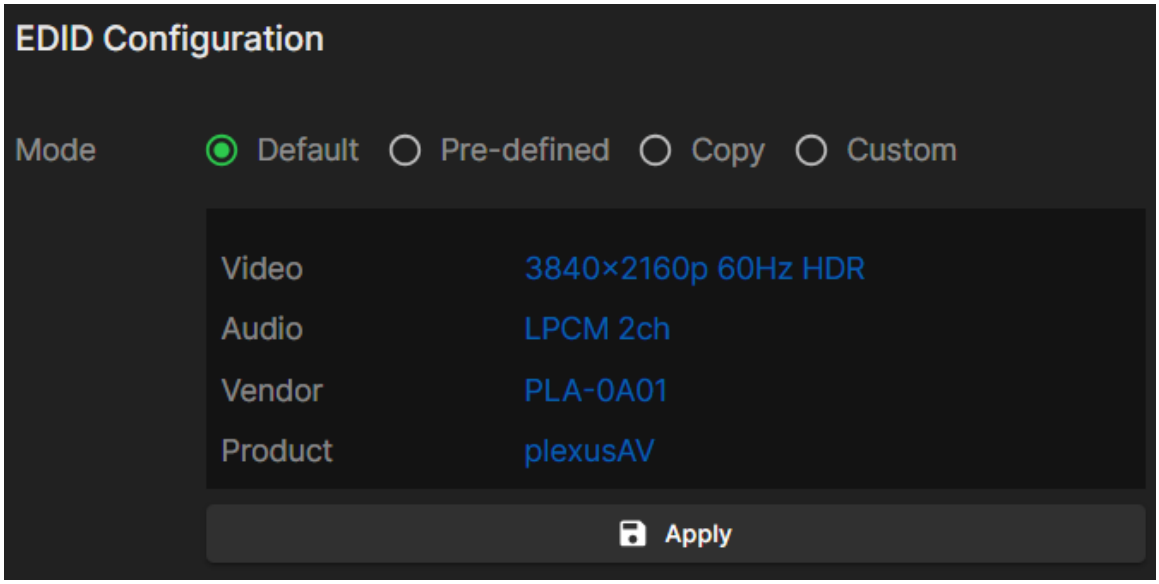
Settings	Range	Description
Bit Depth	16 bit – 24 bit	Changes audio Bit Depth
Sampling Rate	32khz – 192khz	Changes audio Sampling Rate
Volume	0 – 100 %	Changes the Audio Processing volume

In general, ^, and v , icons may be used throughout the control panels to collapse and expand config menus similarly.

The  minus-plus icons, along with the slide bar can be used to adjust Volume.

4.2.8 EDID Configuration

The EDID, Extended Display Identification Data, menu provides options to control how the display communicates its capabilities to connected video sources. Users can adjust modes for multiple device support.

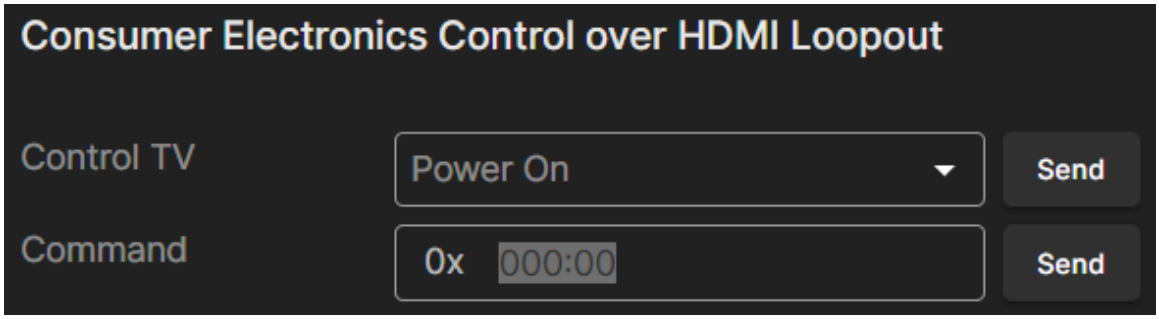


EDID Configuration Window

Option	Description
Default	Applies the default configuration of the unit.
Pre-defined	Choice between manufacturers-provided configurations.
Copy	Copy EDID Configuration from the device.
Custom	Download EDID Configuration from external equipment.

4.2.9 HDMI CEC

HDMI CEC window allows you to send commands through the HDMI to control a connected display.

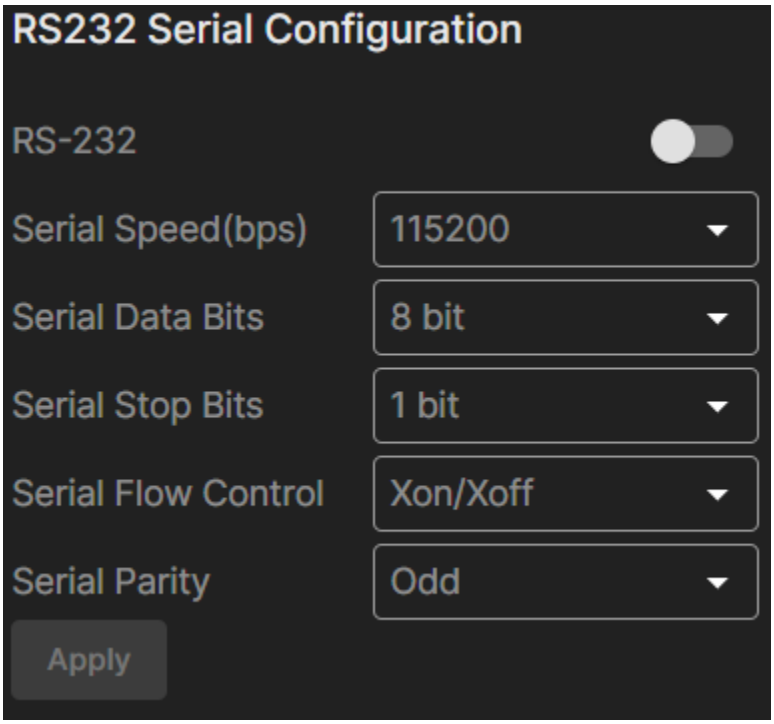


HDMI CEC Window

Settings	Option	Description
Control TV	Power On Power Off Mute Un-Mute	Sends a command to connected display
Command	User-defined	Sends the command after user-defined time setting.

In general, ^ , v ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

4.2.10 RS232 Serial Configuration



RS232 Serial Configuration Window

Settings	Range	Description
RS-232	ON / Off	Enable or Disable RS-232 configuration
Serial Speed (bps)	1200 – 921600	Choose the Serial Speed of RS-232 configuration
Serial Data Bits	5 bit – 8 bit	Choose the Data Bits of RS-232 configuration
Serial Stop Bits	1 bit – 2 bit	Choose the Stop Bits of RS-232 configuration

Serial Flow Control	Xon/Xoff (transmit On/Off) Rts/Cts (Request to Send/Clear to send) Dsr/Dtr (Data Set Ready/Data Terminal Ready)	Change between software or hardware data flows to prevent data loss, buffer overflow, and other communications through serial connection
Serial Parity	Odd Even Mark Space	Choose method sed to detect errors in serial data transmission

In general, ^ , v ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

4.2.11 IR

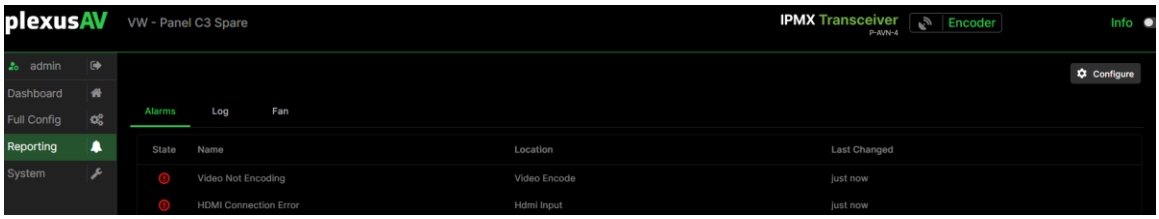
The IR Configuration window displays if IR transmit is enabled or disabled.

IR Configuration Window

4.3 Reporting

The Reporting control panel in the Centra Gateway will provide the user with a list of active alarms and log the detected events. Active alarms are constantly updated to reflect the real-time state of the unit.

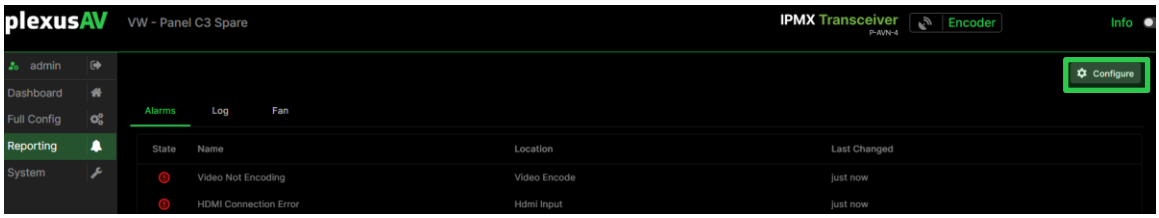
Once an error is no longer detected, it will be cleared from the active alarms window. The log files can be used to view alarm and event history.



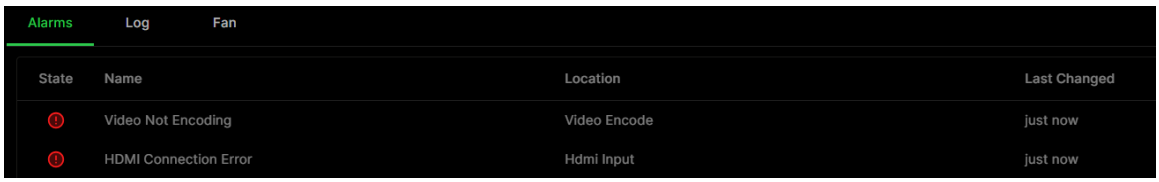
Reporting Main Page

4.3.1 Configure

Configure alarms by selecting the cog icon in the top right corner. When met, trigger specific alerts or notifications. Detailed lists of alarms and their descriptions can be found in Appendix B.



4.3.2 Alarms



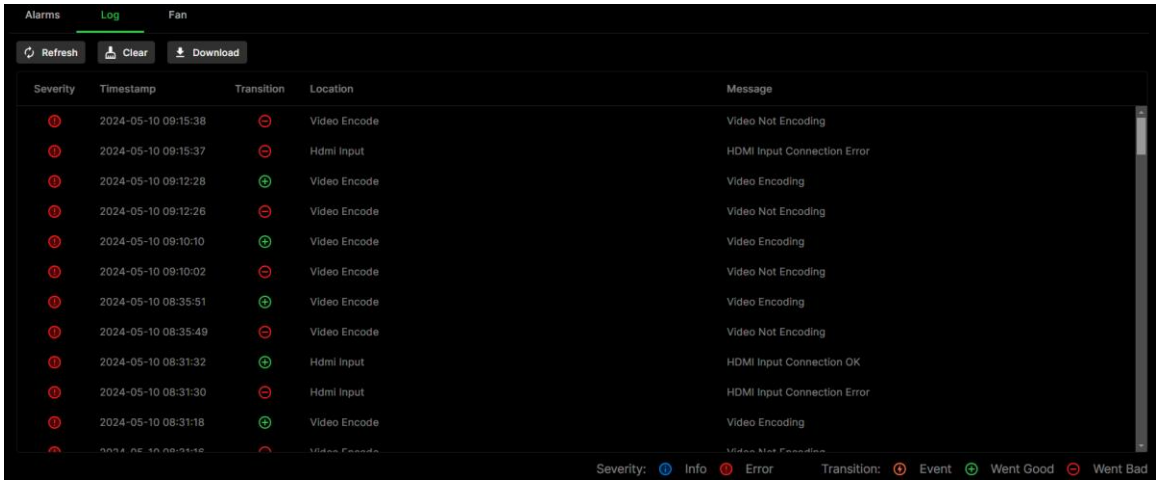
Alarms Tab

By default, the Alarms tab is selected. This list displays all *active* alarms.

Name	Description
State	This column will indicate the Label of the alarm. The red exclamation mark,  , will denote a severe alarm. The grey question mark,  , will be displayed for a possible issue but still functioning.
Name	The route or group affected by the alarm
Location	The alarm label. See Appendix B for a complete list of alarm labels and their meaning.
Last Change	This column displays the most recent date and time the error was raised. Timestamps here are determined with the Date and Time settings configured in Section 4.5.1.3

4.3.3 Log

The Log window stores alarms that were active for a time as well as their clear time. Up to 10000 alarm entries may be stored.



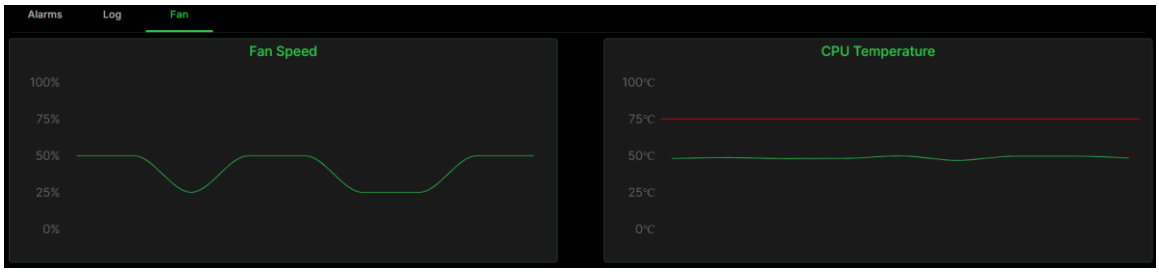
Log Tab

Name	Description
Severity	This column displays the severity of the event. A, "i", indicates information was provided. A, exclamation, Indicates an issue was recorded.
Timestamp	This column displays the most recent date and time the error was raised. Timestamps here are determined with the Date and Time settings configured in Section 4.5.1.3
Transition	During the event, a, lightning bolt, signaled a transition in status, a, minus sign, indicated a critical issue, and a, plus sign, confirmed a successful outcome.
Location	The route or group affected by the alarm
Message	The right-most column will show the alarm name. For more information on alarm names and their descriptions, see Appendix B

The Refresh, Refresh, is used to refresh the log list with any alarm activity while viewing the log page. The Clear, Clear, is used to clear the log page from past activity. The Download, Download, is used to download the log list to an external device for inspection.

4.3.4 Fan

The Fan tab displays the percentage of fan usage and CPU temperature, along with the designated threshold that the temperature should not exceed.



Fan Tab

4.4 System

This menu shows the current software version of the unit. The “Release Notes” button in the top right will show the latest updates made.

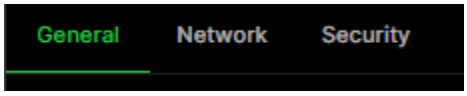
4.5 Administration

Click on the Administration tab to view global settings and maintenance tasks on the P-AVN-4. Use these menus to change system level settings such as date and time, network interface options or the username and password. These functions as well as all others available throughout the Administration panel will be described throughout Section 4.5.

Administration Main Page

4.5.1 General

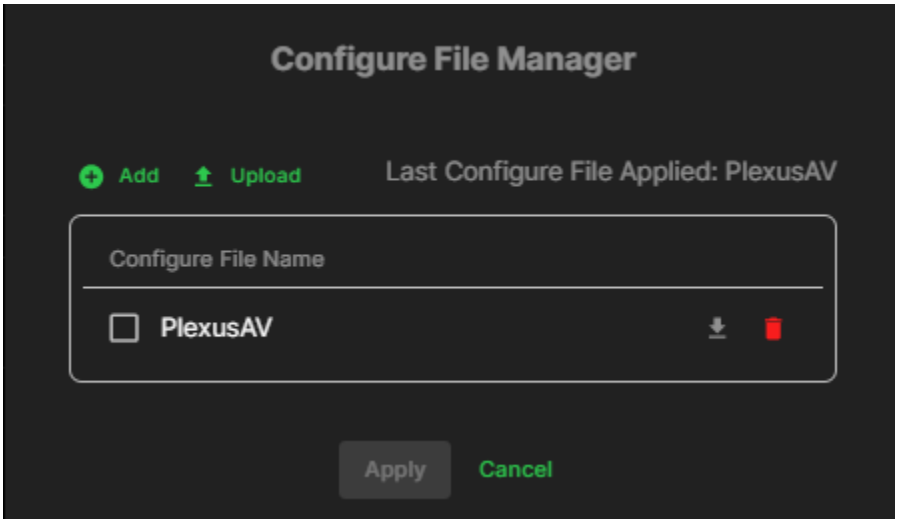
The General tab is the default page of the Administration panel. This tab is used to change the Configured File, Date, and Time as well as the PTP.



4.5.1.1 Configure File Manager

The P-AVN-4 can save all configured settings to multiple configured files. Configured files can be saved locally and saved to external storage to be used on other P-AVN-4.

Configured files can be used to quickly and easily change the configuration of a P-AVN-4 to suit different encoding and decoding requirements.



Configure File Manager Menu

Action	Button	Description
Add New Configuration	Add	Adds a new configuration from the current settings. The user must name the configuration before creation is complete.
Upload Configuration	Upload	Allows the user to browse to an external storage or workstation to upload configuration to the P-AVN-4
Download Configuration		Select a configuration from the menu and click this button. The user will be prompted to select a directory to download the configuration.
Apply Configuration	Apply	Select a configuration from the menu and click this button. The P-AVN-4 will apply all settings contained in the configuration selected.
Cancel	Cancel	Click this button to leave the Configure File Manager

4.5.1.2 Dark Mode

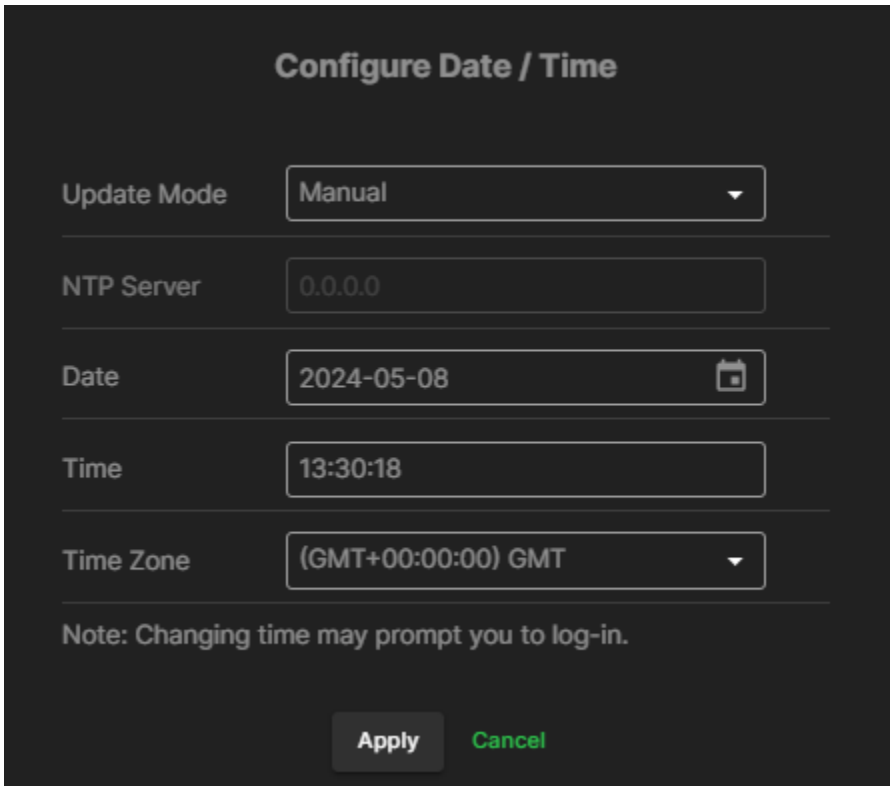
Dark mode disables the LED ring lights around the IR and USB-C ports on the front panel. It can be enabled or disabled for user preference.

Configure Dark Mode window

4.5.1.3 Setting Unit Date and Time

Time can either be defined manually, or the P-AVN-4 can synchronize with an NTP server. Click the “Configure” cog button to expose the ‘Configure Date / Time’ menu. These values are used to timestamp entries in the Alarm and Event logs under the Reporting tab.

Configure Icon Location

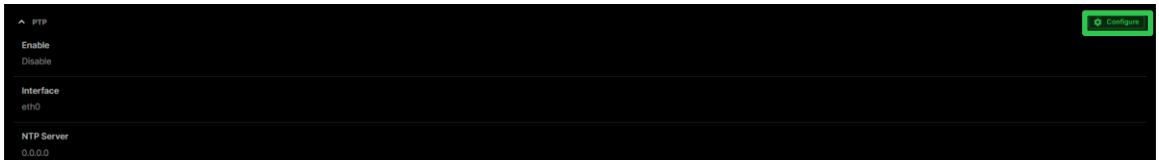


Configure Date / Time Window

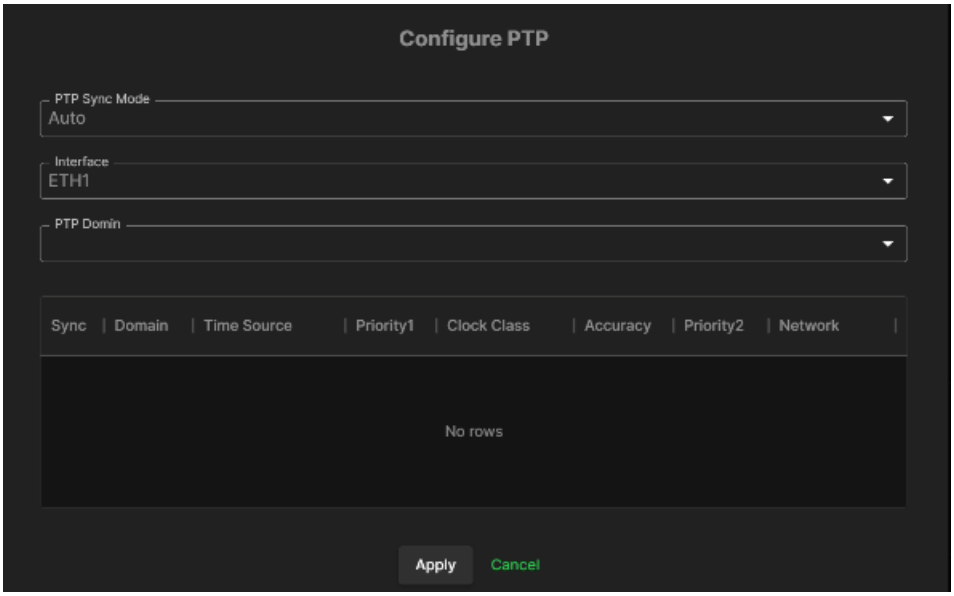
Name	Range	Description
Update Mode	NTP or Manual	When set to NTP, the user provides location information of the NTP server for date and time sync. When Manual, the user will define the system Date and Time
NTP Server	XXX.XXX.XXX.XXX Domain Name	Defines IP Address or Domain Name of the NTP server to be used for NTP mode.
Date	YYYY/MM/DD	Manual mode setting format for the system date. The calendar widget may be used for efficiency
Time	00:00:00 – 24:00:00	Manual mode setting for the system time. The time is based on a 24-hour clock
Time Zone	-12:00:00 ~ +13:00:00	Applies a time offset. Useful for time zone changes or daylight savings time

4.5.1.4 Setting PTP Configuration

The PTP Domain can also be adjusted to synchronize the master PTP clock. PTP clock is generated by a 3rd party appliance and used to ensure all devices on the network are precisely synchronized, enabling seamless high-quality video transmission and processing



Configure Icon Location



Configure PTP Window

Setting	Range	Description
PTP Sync Mode	Auto / Enabled / Disabled	Auto Detect PTP Clock Enable / Disable PTP Clock
Interface	Eth0 / Eth1 / SFP	The physical connector that will be used to receive the PTP clock
PTP Domain	Four decimal octets: XXX.XXX.XXX.XXX Domain Name	This is the IP Address or Domain Name of the local NTP Server on the network. This setting is only available if Update Mode is set to NTP.

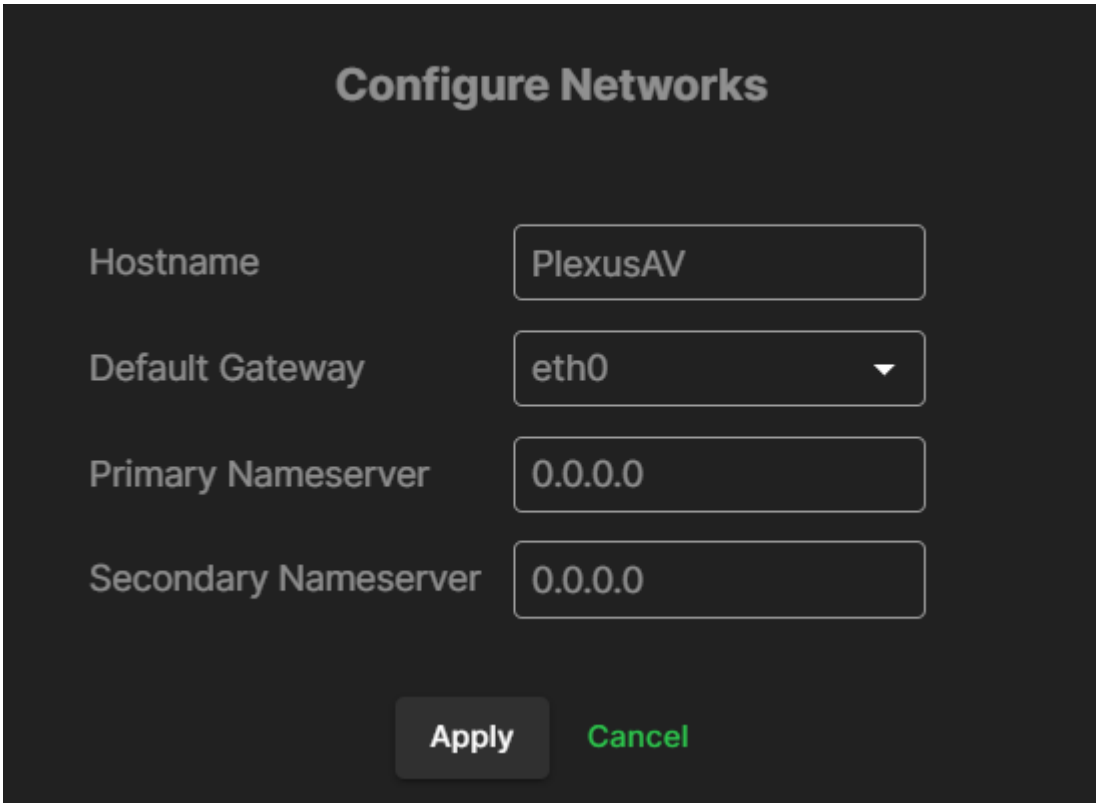
4.5.2 Network

Use the “Network” tab to edit the following network settings for the system as well as its individual interfaces, such as Hostname, DNS, and Network Services.

Administration Network Tab

4.5.2.1 Network

Configure Networks Button



Configure Networks Menu

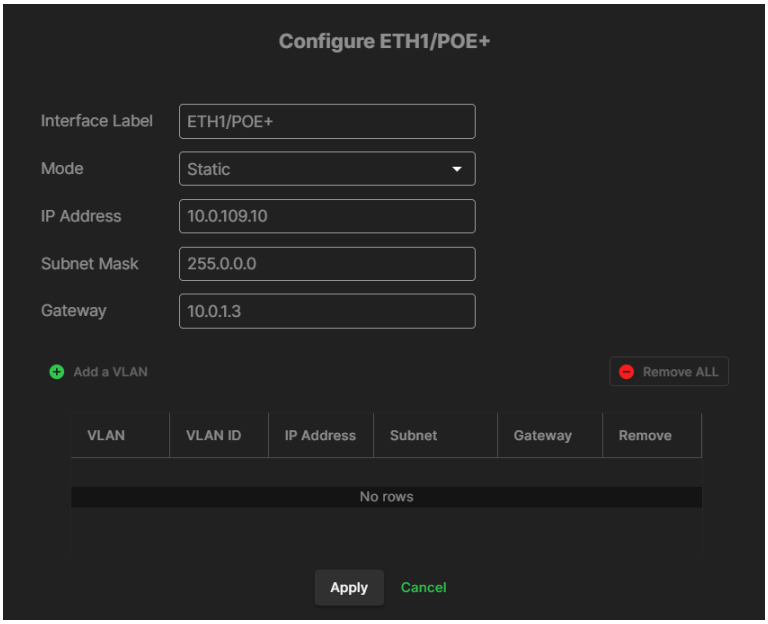
Name	Range	Description
Hostname	Alphanumeric, no spaces allowed	Defines optional system name
Default Gateway	Eth0, Eth1	Defines which physical port gateway address is to be used
Primary Nameserver	xxx.xxx.xxx.xxx	IP address of Primary (DNS) nameserver
Secondary Nameserver	xxx.xxx.xxx.xxx	IP address of Secondary (DNS) nameserver

4.5.2.2 Management and Data Ports

Any NIC can be configured for Management or Data networks via Mode, IP address, and VLAN options. To access NIC settings, click the gear icon by the corresponding NIC to open its menu.

Name	Mode	IP Address	Subnet Mask
ETH1/POE+	STATIC	10.0.109.10	255.0.0.0
ETH2	DHCP	169.254.5.41	255.255.0.0
SFP	DHCP	169.254.5.47	255.255.0.0

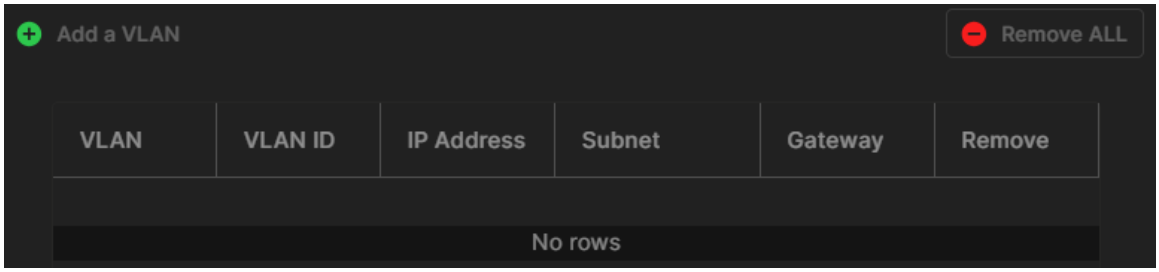
Gear Icon Location



Configure Network Port Window

Settings	Range	Description
Interface Label	User Entered (ETH1/POE+, ETH2, SFP by default)	User defined port names
Mode	DHCP, Static	DHCP allows network server to provide IP address. Static requires the user to define the IP address to be used
IP Address	xxx.xxx.xxx.xxx	Static Mode IP address entry
Subnet Mask	xxx.xxx.xxx.xxx	Static Mode IP address entry
Gateway	xxx.xxx.xxx.xxx	Static Mode IP address entry

To add a VLAN to the NIC, click the “Add a VLAN” button to expose the “Add VLAN” menu.



Add VLAN Icon

Add VLAN Window

Setting	Range	Description
VLAN Name	User Entered	Label the VLAN interface
VLAN Tag ID	1 – 4094	The VLAN Tag to be assigned to outgoing streams and filtered for incoming streams
IP Address	xxx.xxx.xxx.xxx	Static Mode IP address entry
Subnet Mask	xxx.xxx.xxx.xxx	Static Mode subnet mask entry
Gateway	xxx.xxx.xxx.xxx	Static Mode gateway entry

After clicking “Apply”, any newly created VLAN will now be present on the VLAN list. Any VLAN interfaces for a given ethernet port will be available for selection on any Destination or Source Node thereafter. After a VLAN is created, all its fields except the VLAN ID are eligible for change except the VLAN ID. Use the textboxes to edit settings on existing VLANs.

Editing VLANs

To remove individual VLANs, click the red icon under the “Remove” column for the corresponding row. To remove all VLANs, click the “Remove ALL” button.

Removing One or All Configured VLANs

4.5.3 Security

Use the ‘Security’ tab to edit the following security settings: Login Password, CSRs, and SSL/TLS Certificates

Security Tab

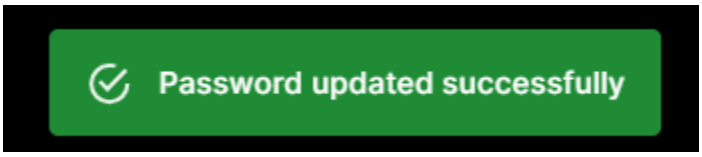
4.5.3.1 Changing Unit Password

The default admin-password is ‘proav101’. To change the password, click the “Change” button.

Password Selection

After clicking “Change” the Password field will become editable. Manually enter the intended string, and then click “OK” to commit the changes (or “Cancel” to revert them).

Password Change Menu



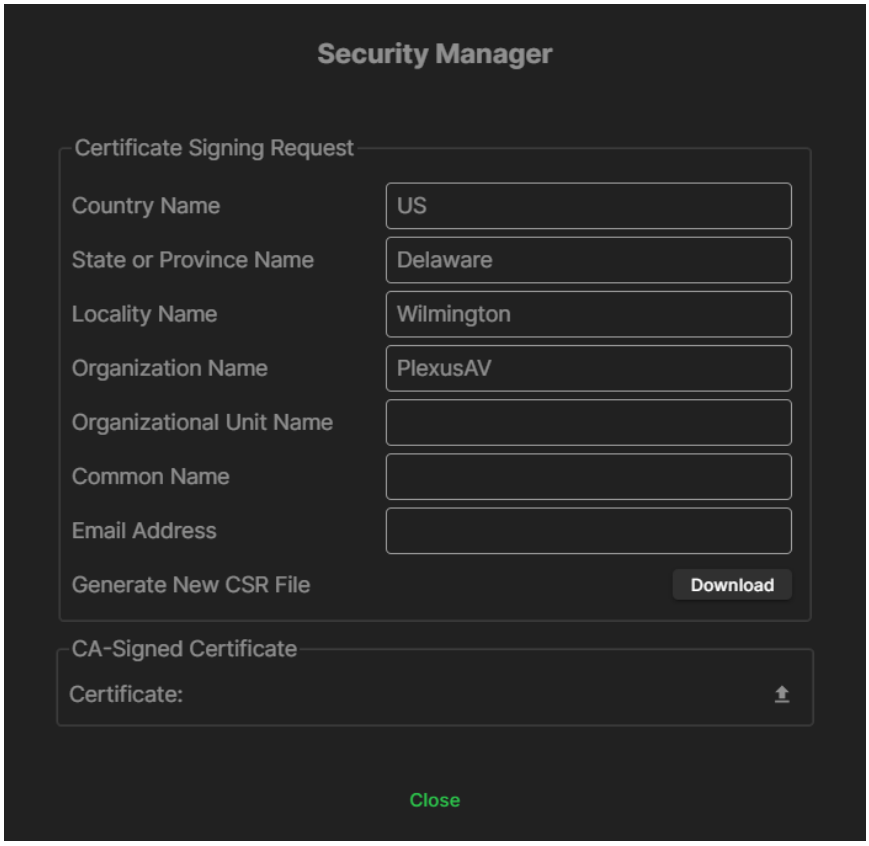
Password Application Prompt

After the password is applied, the change will go into effect upon the next sign-in.

4.5.3.2 Security Manager

The Security Manager is used to configure self-signed certificate information.

Security Manager Section



Security Manager Menu

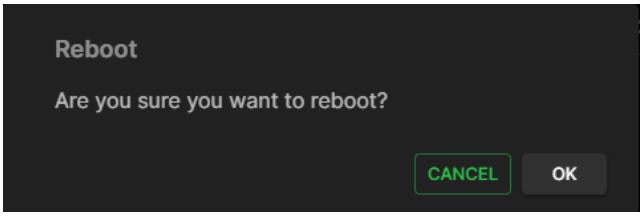
Settings	Range	Description
Country Name	User entry	Country Name for generated CSR file
State or Province Name	User entry	State/Province Name for generated CSR file
Locality Name	User entry	Locality Name for generated CSR file
Organization Name	User entry	Organization Name for the generated CSR file
Organizational Unit Name	User entry	Organizational Unit Name for the generated CSR file
Common Name	User entry	Common Name for the generated CSR file
Email Address	User entry	Email Address for reference on the generated CSR file
Generate New CSR File	Download	This icon will download the locally generated CSR file onto a remote machine
Certificate		Use this icon to upload the CA-Signed certificate file

4.5.4 Reboot the Unit

The P-AVN-4 can be rebooted from the web interface Admin page. The ‘Reboot’ button is in the top right corner of the Administration Control Panel.
To perform a reboot, click the reboot button. Bootup takes approximately 60 seconds.

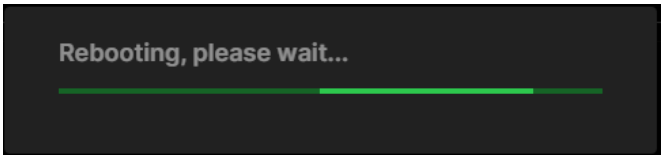
Reboot Icon Location

The system will prompt to confirm the reboot request. Click “OK” to proceed or “Cancel” to back out without resetting.



Reboot Window Prompt

Once confirmed, a status window with a progress bar will open and be visible until the reboot is complete, and the login window is displayed.

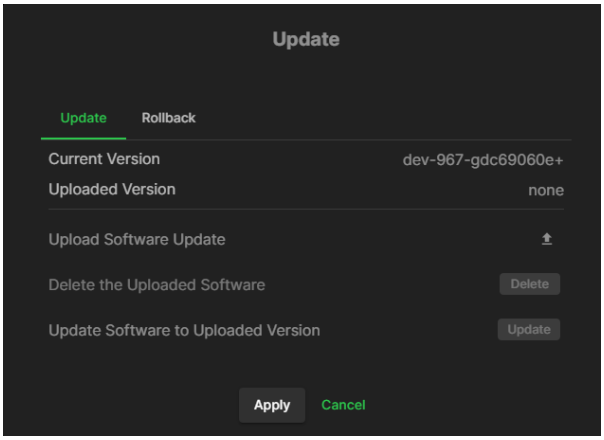


Rebooting Status

4.5.5 Updating the System Software

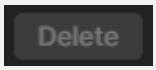
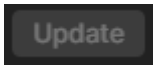
Updates to the P-AVN-4 are performed through the web interface. Software update files are provided by plexusAV and then uploaded to the unit. To request the latest software version or a copy of the release notes, please send an email to ProCare@PlexusAV.com. Click the “Update” icon to open the menu for uploading and applying software. With the addition of plexusAV PAVN-VA Visual Array updates can be pushed across multiple devices at the same time by selecting the P-AVN-4 units available.

Update Icon Location



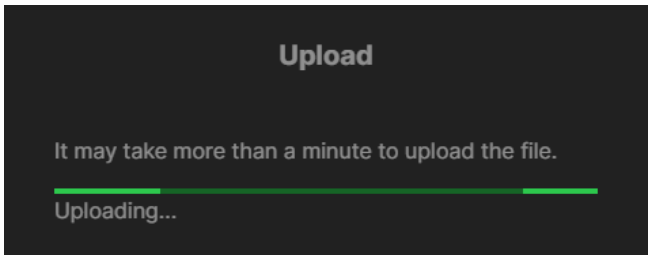
Update Menu

The “Current Version” reflects the software currently running on the P-AVN-4, while the “Uploaded Version” field shows the firmware uploaded onto the unit. If there is an Uploaded Version, then clicking ‘Update’ will trigger the unit to push the uploaded firmware to the system (entails a reboot, scheduled during an available maintenance window as needed).

Settings	Range	Description
Upload Software Update		To upload software updates to the Centra Gateway click this button. The user will be prompted to navigate to an update file. The file will then upload to the Centra Gateway. When complete the Centra Gateway with prompt the user to either apply the update or cancel
Delete the Uploaded Software		Clicking this button prompts the user to confirm the deletion of the software update from the Centra Gateway. This will also clear the Uploaded Version status of the Software Versions section
Update Software to Uploaded Version		Clicking the button starts the software update process. The Centra Gateway will prompt the user to confirm the update. Click Yes to continue or No to cancel

Applying software updates

1. Click upload button and browse to the appropriate software file
2. A progress bar will show uploading status



Upload Window

3. Once the file is uploaded, click on the “Update” button
4. The Centra will reboot after a software update is complete.

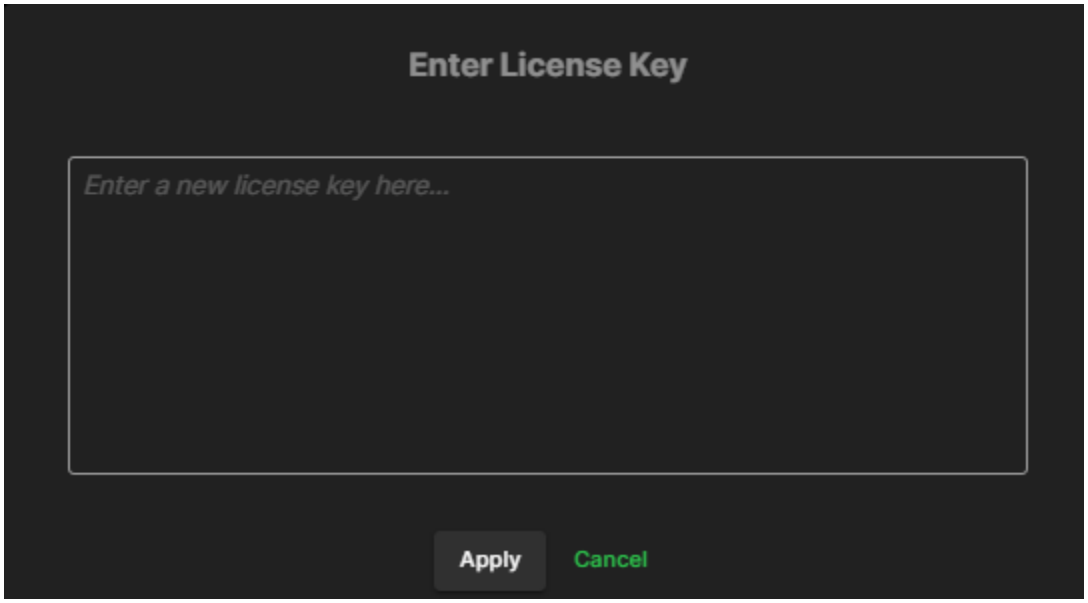
4.6 Licenses

Certain features of the P-AVN-4 require licenses to be functional. The interface displays all licenses available as well as the following status:

- State Licensed or Unlicensed
- License is Supported or Unsupported by the installed hardware
- By default the P-AVN-4 has all licenses available at the time of purchase. Future features may be licensed.

Licenses Main Page

If licenses need to be applied to the P-AVN-4 click Apply License Key button in the top right. The menu below will appear where the user can copy and paste the provided license key from PlexusAV.



Licenses Key Menu

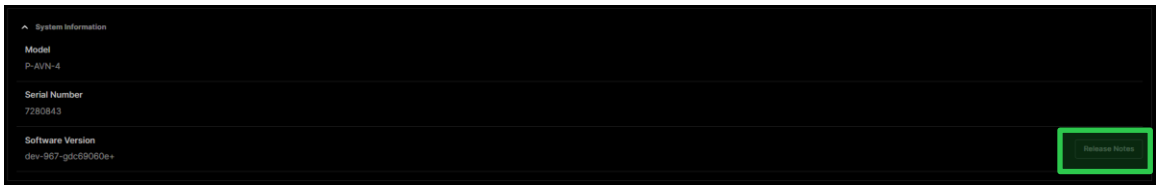
4.7 About

Under the “About” panel, there is information about the current software version, hardware/software options, how to contact Sencore, and third-party software being used

About Main Page

4.7.1 System Information

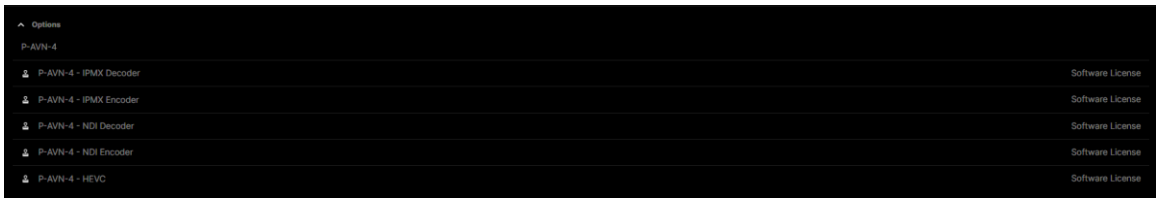
System Information displays the Model, Serial Number, and Software version.



System Information

4.7.2 Options

The Options pane displays which licenses are available.



4.7.3 Contact Information

This control panel area gives the user the physical address, web address, and phone number as methods of contact.

Contact Information Section

4.7.4 Third Party Software Information

This area of the control panel can be expanded to show the third-party software used by the plexusAV P-AVN-4. See Appendix D for a complete list.

Third-Party Software Section

Section 5 Appendices

Introduction

This section includes the following appendices:

Appendix A – Acronyms and Glossary

AC-3: Also known as Dolby Digital
Bit Rate: The rate at which the compressed bit stream is delivered from the channel to the input of a decoder.
DHCP: Dynamic Host Configuration Protocol
HD: High Definition
I/O: Input/Output
IP: Internet Protocol
Kbps: 1000 bit per second
LED: Light Emitting Diode
Mbps: 1,000,000 bits per second.
NMOS: Networked Media Open Specifications
NTP: Networking Time Protocol
PCM: Pulse-Code Modulation
RU: Rack Unit
SD: Standard Definition
SNMP: Simple Network Management Protocol
SRT: Secure Reliable Transport

Appendix B – Error and Event List

Error	Description
Expiring State Error	Data conditions are no longer valid or relevant.
NTP Server Unreachable	The NTP server was unable to be reached.
Network Interface Link Down	Triggers an alarm if the physical interface is not detected as active.
HDMI Connection Error	HDMI connection not detected.
Video Not Decoding	The video payload in the selected service cannot be decoded.
Video Not Encoding	The video payload in the selected service cannot be encoded.
Reboot Required for HTTPS Certificate to be Removed	An External Security certificate that was added (per Section 3.3.6) has since been removed, and a reboot is required to revert to using Self-Signed Certificates for FTPS/Samba.

Event	Description
Software Update Failed	An attempted software update was unsuccessful.
Software Update Succeeded	An attempted software update succeeded.
Unit Booted	The system completed a boot process.
NTP Updated	The NTP Date/Time was updated.
Demo Key Expired	The demonstration period for software has ended.
Date/Time Changed	The Date/Time setting of the system was changed.

Appendix C – Specifications

Encoder Mode Interface Specifications:

HDMI and USB Interfaces:

- **HDMI Input** (1): Type-A Female, HDMI 2.1/1.4b
  Content Protection – up to HDCP 2.3
  Consumer Electronics Control (CEC)
  EDID Control - Auto, Presets or Manual
- **HDMI Loop Out** (1)
- **USB-C** (3):
  Two USB 2.0 (Data, Front)
  One USB 3.0 (Video, DisplayPort Alt Mode, Rear)

Decode Mode Interface Specifications:

HDMI and USB Interfaces:

- **HDMI Output** (1): Type-A Female, HDMI 2.1, 1.4b
  Content Protection – up to HDCP 2.3
  Consumer Electronics Control (CEC)
  EDID Control - Save EDID to file or EDID download
- **USB-C** (3): Two USB 2.0 (Data, Front)
  One USB 3.0 (Video, DisplayPort Alt Mode, Rear)

Network Interfaces:

- **Ethernet 1**: RJ-45/PoE+ (100/1000 Auto-Negotiating)
- **Ethernet 2**: RJ-45 (100/1000 Auto-Negotiating)
- **Ethernet 3**: SFP 1GB (100/1000 Auto-Negotiating)

IPMX Support:

- TR-10-1 – System Timing and Definitions
- TR-10-3 – PCM Digital Audio
- TR-10-5 – HDCP Key Exchange Protocol
- TR-10-7 – Compressed Video
- TR-10-8 – NMOS Requirements
- TR-10-11 – Constant Bit-Rate Compressed Video

Video and Audio Specifications:

Video Support:

- **Codecs:** JPEG XS, JPEG XS Flawless Imaging Profile (FIP)
- **Resolutions/Frame Rates:**
  - 3840x2160P @ 60, 50, 30, 25fps
  - 1920x1080P @ 60, 50, 30, 25
  - 1280x720P @ 60, 50
- **Bitrates:** 200 – 800 Mbps, user configurable
- **Dynamic Range**: HDR10, HLG, SDR
- **Color Formats**: RGB 8-bit, YUV 4:2:2 12/10-bit
- **Color Gamut:** BT.2020, BT.709, BT.601
- **Video Scaler:** Supports resolution upscaling, downscaling, frame rate conversion, color mode conversion, and aspect ratio adjustment.
- **Videowall Processing**: Up to 3x3

Audio Support:

- **Uncompressed Audio Support**: Linear PCM, AES67
- **Bit Depth**: 24/20/16-bit
- **Sampling Rate**: 192, 176.4, 96, 88.2, 48, 44.1, 32kHz
- **Volume Control**

Dante Audio Support:

- Dante Controller detects P-AVN-4
- Dante Stereo PCM audio support
- 1x Dante Stereo IP input
- 1x Dante Stereo IP output

Analog Audio Support:

- **Connector**: 5-pin Phoenix
- **Channels:** Stereo Pair, Balanced or Unbalanced

Management and Control:

- **Web Interface (Web UI):** Built-in web interface for easy configuration and control.
- **HTTPS API**: Supports GraphQL for advanced integration
- **NMOS Support**: IS-04, IS-05, and BCP-003
- **Dante Controller** (Dante Audio only)
- **RS232 Control**: 5-pin Phoenix connector for integration with existing control systems.
- **LED Indicators**: Power, error, UUID, and dark mode to disable indicators.

Dimensions & Power:

- **Size:** 162 mm x 143 mm x 26 mm (6.37" x 5.63" x 1.02")
- **Weight:** 1.3 lbs (0.6 kg)
- **Power:**
  - **PoE+:** IEEE 802.3at Type 2 Class 4 (25.5 W) compliant
  - **External:** 12V DC/3A (optional, sold separately).

Environmental Conditions:

- **Operating Temperature**: -13° to 113° F (-25° to 45° C)
- **Storage Temperature**: -40° to 113° F (-40° to 149° C)
- **Operating Humidity**: Less than 95% (non-condensing)
- **Acoustic Noise**: 33 dBA typical

Future Features (Planned Updates):

- **Secondary Stream**: HEVC/H.264 compressed video
- **VESA Video Modes**: Additional support for various video standards
- **AAC and Dolby Audio Support**
- **IR input and output**

Appendix D – Open-Source Software

The P-AVN-4 includes:

Package	Version	License	Copyright
avahi	0.8	LGPL Version 2.1, February 1999	1999 Free Software Foundation, Inc.
BusyBox	1.24.2	GPL Version 2, June 1991	Erik Anderson, et. al.
cairo	1.12.0	LGPL Version 2.1, Feb 1999	Josh Aas, et. Al.
ccid	1.5.2	GPL Version 3	Copyright (c) 2001-2011 Ludovic Rousseau
cjson	1.7.15	MIT	Dave Gamble and cJSON contributors
Dropbear	2022.83	MIT-like	2002-2015 Matt Johnston, et. al (see license)
dOpenSSL	3d6c942	MIT-like	Copyright (c) 2013, infinit.io
e2fsprogs	1.45.4	GPL Version 2, June 1991	Theodore Ts'o
ethtool	4.13	GPL Version 2, June 1991	David Miller, et. al.
expat	2.5.0	MIT	2001-2006 Expat maintainers.
FastDB	3.71	MIT-like	Konstantin Knizhnik
FCGI	2.4.6	FastCGI	Open Market, Inc
FFmpeg	5.0.1	LGPL Version 2.1 Feb 1999	Fabrice Bellard
fontconfig	2.10.0	MIT	2001-2003 Keith Packard
freefont	20120503	GPL Version 3, 29 June 2007	Primoz Peterlin
freetype	2.9	GPL Version 2, June 1991	David Turner, et. al.
gmp	6.2.1	GPL Version 2, June 1991	Copyright 1991, 1996, 1999, 2000, 2007 Free Software Foundation, Inc.
gnutls	3.6.16	GPL Version 3, 29 June 2007	Copyright (C) 2007 Free Software Foundation, Inc.
gptfdisk	1.0.3	GPL Version 2, June 1991	Roderick W. Smith
grub	2.00	GPL Version 3, 29 June 2007	Copyright (C) 1994 – 2011 Free Software Foundation, Inc.
Heimdal	7.1.0	MIT-like	Copyright (c) 1995 – 2014 Kungliga Tekniska Hogskolan

httpparser	2.9.4	MIT	Joyent, Inc. and other Node contributors
ipmitool	1.8.18	BSD	Sun Microsystems, Inc.
JSON	4.10	GPL Version 2, June 1991	Copyright 2005-2013 by Makamaka Hannyaharamitu
libcurl	7.80.0	MIT	1996 – 2021, Daniel Stenberg and contributors
libdvbcsa		GPL Version 2, June 1991	Linus Torvalds, et. al.
libevent	2.1.12	BSD	2007-2012 Niels Provos and Nick Mathewson
LIBPCAP	1.8.1	BSD	Copyright (c) 1993, 1994, 1995, 1996, 1997 The Regents of the University of California
libp11	0.4.12	GPL Version 2, June 1991	Linus Torvalds, et. al.
libpng	1.2.59	zlib/libpng License	2006-2017 Glenn Randers-Pehrson, et. al.
libusb	1.0.19	BSD	Copyright(C) 1994-1996, 1999-2002, 2004-2016 Free Software
Lighttpd	1.4.69	BSD	2004, Jan Kneschke
Linux	5.3.5	GPL Version 2, June 1991	Linus Torvalds, et. Al.
Linux-PAM	1.3.1_2020-0	GPL Version 2, June 1991	Copyright (c) 2005, 2006, 2009 Thorsten Kukuk
Log4cpp	1.1.3	GPL Version 2.1 Feb 1999	Bastiaan Bakker
Monit	5.33.0	GNU AFFERO GENERAL PUBLIC LICENSE	Copyright (C) 2001-2022 by Tildeslash Ltd.
Net-SNMP	5.7.1	BSD	1989, 1991, 1992 by Carnegie Mellon University, et. al. (see license)
nettle	3.8.1	GPL Version 2, June 1991	Copyright (C) 1989, 1991 Free Software Foundation, Inc.
Nlohmann	3.10.4	MIT	2013-2021 Niels Lohmann
NTP	4.2.4p7	NTP License	1992-2009 David L. Mills
OpenSC	0.23.0	GPL Version 2, June 1991	Copyright (C) 1991, 1999 Free Software Foundation
OpenSSL	3.1.1	Apache License 2.0	1998-2022 The OpenSSL Project, 1995-

			1998 Eric Young and Tim Hudson
parse-yapp	1.21	GPL Version 2, June 1991	Copyright (C) 1998, 1999, 2000, 2001, Francois Desarmenien. Copyright (C) 2017 William N. Braswell, Jr.
PCRE	8.30	BSD	1997-2012 University of Cambridge, et. al. (see license)
pcsc	2.0.0	GPL Version 3	Copyright (c) 2001-2011 Ludovic Rousseau
pixman	0.30.0	MIT	2004-2010 Red Hat, Inc.
POPT	1.16	MIT	1998 Red Hat Software
pureftpd	1.0.51	BSD	Frank Denis
qDecoder	12.0.4	BSD	2000-2012 Seungyoung Kim
rapidjson	b16cec1a	MIT	2015 THL A29 Limited, a Tencent company, and Milo Yip
samba	4.18.0	GPL Version 3, 29 June 2007	Andrew Tridgell, et. al.
sdptransform	1.2.9	MIT	2017 Iñaki Baz Castillo.
FamFamFam Silk Icons	013	Creative Commons Attribution 2.5	Mark James
Spawn-FCGI	1.6.3	BSD	Jan Kneschke, Stefan Bahler
srt	1.4.2	MPLv2.0 License	2018 Haivision Systems Inc.
TACACS+	master_2020	GPL Version 2, June 1991	Copyright (C) 2010, Pawel Krawczyk and Jeroen Nijhof
TCLAP	1.2.0	MIT	2003 Michael E. Smoot
Uuid	1.0.3	BSD	Robert Boehne
Zlib	1.2.7	zlib/libpng License	1995-2005 Jean-loup Gailly and Mark Adler

Appendix E – Warranty

PlexusAV Hardware Three-Year Warranty

PlexusAV warrants this instrument against defects from any cause, except acts of God and abusive use, for a period of 3 (three) years from date of purchase. During this warranty period, PlexusAV will correct any covered defects without charge for parts, labor, or recalibration.

Appendix F – Support and Contact Information

Returning Products for Service or Calibration

The P-AVN-4 is a delicate piece of equipment and needs to be serviced and repaired by PlexusAV. Periodically it is necessary to return a product for repair or calibration. To expedite this process please carefully read the instructions below.

RMA Number

Before any product can be returned for service or calibration, an RMA number must be obtained. To obtain an RMA number, contact procare@plexusav.com and open a service ticket with our Application Engineering team.

Shipping the Product

Once an RMA number has been issued, the unit needs to be packaged and shipped back to PlexusAV. It's best to use the original box and packaging for the product but if this not available, check with the customer service representative for the proper packaging instructions.

> *Note: DO NOT return any power cables or accessories unless instructed to do so by the customer service representative*

PlexusAV
3200 W Sencore Drive
Sioux Falls, SD 57107 USA
www.plexusav.com
1.605.978.4800

Appendix G – Accessories

Accessory List

Current list of available accessories, mounts, and Visual Array servers

Part number	Description
P-AVN-VA-MINI	Visual Array Appliance, MiniPC, Management and Control / 25 end-points enabled (MAX 50)
P-AVN-VA-ADV	Visual Array Appliance, 1RU Server, Management and Control / 50 end-points enabled (MAX 500)
P-AVN-M-WAL	Table and wall mounting bracket set (accommodates one unit)
P-AVN-M-1RU	Rackmount, 1RU, can hold up to 3x P-AVN2/4 units
P-AVN-M-4RU-KIT	Rackmount Kit Frame, 4RU, holds 14x P-AVN2/4 units, includes frame, 14x set rackears and 14x blankplate
P-AVN-PSU-TYPE-A-US	Type A power supply for P-AVN2/4 (commonly used in the USA, Canada, Mexico, China, etc.)
P-AVN-PSU-TYPE-C-EU	Type C power supply for P-AVN2/4 (commonly used in Europe, South America & Asia)
P-AVN-PSU-TYPE-G-UK	Type G Power supply for P-AVN2/4 (commonly used in UK, Malaysia, Singapore, etc.)
P-AVN-PSU-TYPE-I-AUS	Type I Power supply for P-AVN2/4 (commonly used in Australia, New Zealand, China & Argentina)
P-AVN-SFP-1G-COPPER-RJ45-ETH	SFP Copper Module, 1Gbps Copper, RJ45 transceiver (This SFP insert has an ethernet port)
P-AVN-SFP-1G-FIBER-1310NM-SM	SFP Fiber Module, 1Gbps Single Mode, 1310NM (This SFP insert has dual LC fiber optic ports)
P-AVN-SFP-1G-FIBER-850NM-MM	SFP Fiber Module, 1Gbps Multimode, 850NM (This SFP insert has dual LC fiber optic ports)

PlexusAV
3200 W Sencore Drive
Sioux Falls, SD 57107 USA
www.plexusav.com
1.605.978.4800