

plexusAV

DIREKTRONIK

plexusAV P-AVN-4 IPMX JPEG XS FIP Transceiver

User Manual





SE



NO

Direktronik AB | Box 234 , 149 23 Nynäshamn | Besöksadress Konsul Johnsons väg 15 149 45 Nynäshamn
Telefon 08 52 400 700 | Fax | Epost info@direktronik.se | Org.nr 556281-9663 | Bankgiro 922-0179

Copyright

© 2024 PlexusAV. All rights reserved.
3200 Sencore Drive, Sioux Falls, SD USA
www.plexusav.com

This publication contains confidential, proprietary, and trade secret information. No part of this document may be copied, photocopied, reproduced, translated, or reduced to any machine-readable or electronic format without prior written permission from PlexusAV. Information in this document is subject to change without notice and PlexusAV. assumes no responsibility or liability for any errors or inaccuracies. PlexusAV and the PlexusAV logo are trademarks or registered trademarks in the United States and other countries. All other products or services mentioned in this document are identified by the trademarks, service marks, or product names as designated by the companies who market those products. Inquiries should be made directly to those companies. This document may also have links to third-party web pages that are beyond the control of PlexusAV. The presence of such links does not imply that PlexusAV endorses or recommends the content on those pages. PlexusAV acknowledges the use of third-party open-source software and licenses in some PlexusAV products. This freely available source code can be obtained by contacting PlexusAV.

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 | 9 |
| 1.1 PRODUCT INTRODUCTION | 10 |
| 1.2 FRONT PANEL OVERVIEW | 12 |
| 1.3 REAR PANEL OVERVIEW | 12 |
| SECTION 2 INSTALLATION | 13 |
| 2.1 RACK INSTALLATION | 14 |
| 2.2 POWER CONNECTION | 14 |
| 2.3 MAINTENANCE | 14 |
| 2.4 NETWORK SETUP | 14 |
| SECTION 3 WEB-INTERFACE OPERATION | 16 |
| 3.1 LOGGING INTO THE P-AVN-4 WEB INTERFACE..... | 17 |
| 3.2 HEADER INFORMATION | 18 |
| 3.3 NAVIGATION PANE..... | 20 |
| 3.4 DASHBOARD | 23 |
| SECTION 4 CONTROL PANELS | 24 |
| 4.1 DASHBOARD | 25 |
| 4.1.1 Main Configuration | 25 |
| 4.1.2 Video Input Selection..... | 26 |
| 4.1.3 Audio Input Selection..... | 27 |
| 4.1.4 NMOS Discovery Network | 28 |
| 4.1.5 Video Preview Panel | 29 |
| 4.1.6 USB-C Panel..... | 30 |
| 4.1.7 Dante Audio Panel..... | 30 |
| 4.1.8 Network Preview Panel | 31 |
| 4.1.9 Primary Video Output Panel..... | 32 |
| 4.1.10 HDMI Monitor / Loop Out Panel | 35 |
| 4.1.11 Dante Audio Output Panel..... | 36 |
| 4.1.12 Secondary Video Output Panel [Encoder Mode Only] | 36 |
| 4.1.13 Video Wall | 38 |
| 4.2 FULL CONFIG..... | 39 |
| 4.2.1 Main Configuration | 39 |
| 4.2.2 Input Selection..... | 40 |
| 4.2.3 IP Output | 42 |
| 4.2.4 Video Processing..... | 43 |
| 4.2.5 USB | 45 |
| 4.2.6 Secondary Video | 45 |
| 4.2.7 Audio Processing | 46 |
| 4.2.8 EDID Configuration..... | 46 |
| 4.2.9 HDMI CEC | 47 |
| 4.2.10 RS232 Serial Configuration..... | 48 |
| 4.2.11 IR | 49 |
| 4.3 REPORTING..... | 49 |
| 4.3.1 Configure..... | 50 |
| 4.3.2 Alarms | 50 |
| 4.3.3 Log..... | 50 |
| 4.3.4 Fan..... | 52 |
| 4.4 SYSTEM..... | 52 |

| | | |
|---|---|-----------|
| 4.5 | ADMINISTRATION..... | 52 |
| 4.5.1 | <i>General</i> | 53 |
| 4.5.1.1 | Configure File Manager | 53 |
| 4.5.1.2 | Dark Mode | 54 |
| 4.5.1.3 | Setting Unit Date and Time | 54 |
| 4.5.1.4 | Setting PTP Configuration | 55 |
| 4.5.2 | <i>Network</i> | 56 |
| 4.5.2.1 | Network | 56 |
| 4.5.2.2 | Management and Data Ports | 57 |
| 4.5.3 | <i>Security</i> | 59 |
| 4.5.3.1 | Changing Unit Password | 60 |
| 4.5.3.2 | Security Manager | 60 |
| 4.5.4 | <i>Reboot the Unit</i> | 62 |
| 4.5.5 | <i>Updating the System Software</i> | 62 |
| 4.6 | LICENSES | 65 |
| 4.7 | ABOUT..... | 66 |
| 4.7.1 | <i>System Information</i> | 67 |
| 4.7.2 | <i>Options</i> | 67 |
| 4.7.3 | <i>Contact Information</i> | 68 |
| 4.7.4 | <i>Third Party Software Information</i> | 68 |
| SECTION 5 APPENDICES..... | | 69 |
| APPENDIX A – ACRONYMS AND GLOSSARY..... | | 70 |
| APPENDIX B – ERROR AND EVENT LIST..... | | 71 |
| APPENDIX C – SPECIFICATIONS | | 72 |
| APPENDIX D – OPEN-SOURCE SOFTWARE | | 75 |
| APPENDIX E – WARRANTY | | 78 |
| APPENDIX F – SUPPORT AND CONTACT INFORMATION | | 78 |
| APPENDIX G – ACCESSORIES | | 79 |

Section 1 Overview



Introduction

This section includes the following topics:

| | | |
|-----|----------------------------|----|
| 1.1 | PRODUCT INTRODUCTION | 10 |
| 1.2 | FRONT PANEL OVERVIEW | 12 |
| 1.3 | REAR PANEL OVERVIEW | 12 |

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

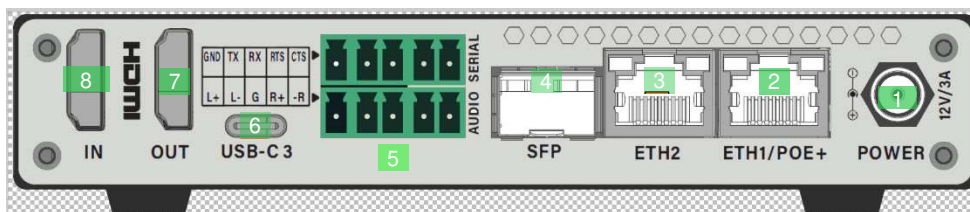
- Size: 162 mm x143mm x26 mm (6.37" x 5.63" x 1.02")
- Weight: 1.3 lbs. (0.6kg)
- Power: 12V DC / 3A
 - Supplies: 1x External power supply (sold separately)
[Link to accessories](#)

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 | 14 |
| 2.2 | POWER CONNECTION | 14 |
| 2.3 | MAINTENANCE | 14 |
| 2.4 | NETWORK SETUP | 14 |

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..... | 17 |
| 3.2 | HEADER INFORMATION | 18 |
| 3.3 | NAVIGATION PANE | 20 |
| 3.4 | DASHBOARD | 23 |

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:

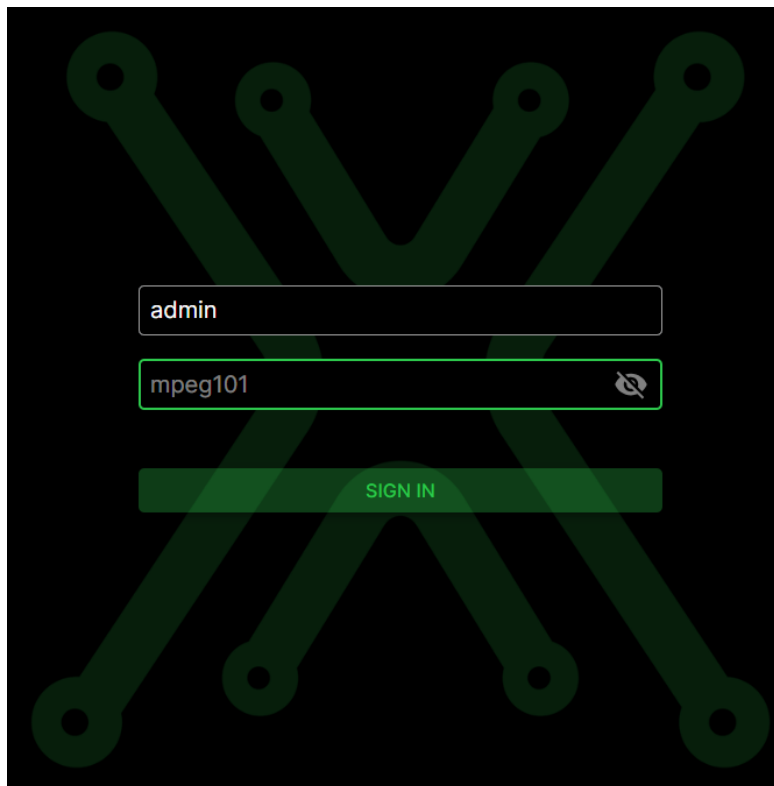
- Internet Explorer 7 & above
- Firefox 3.5 & above
- Google Chrome
- Microsoft Edge

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

Default Credentials

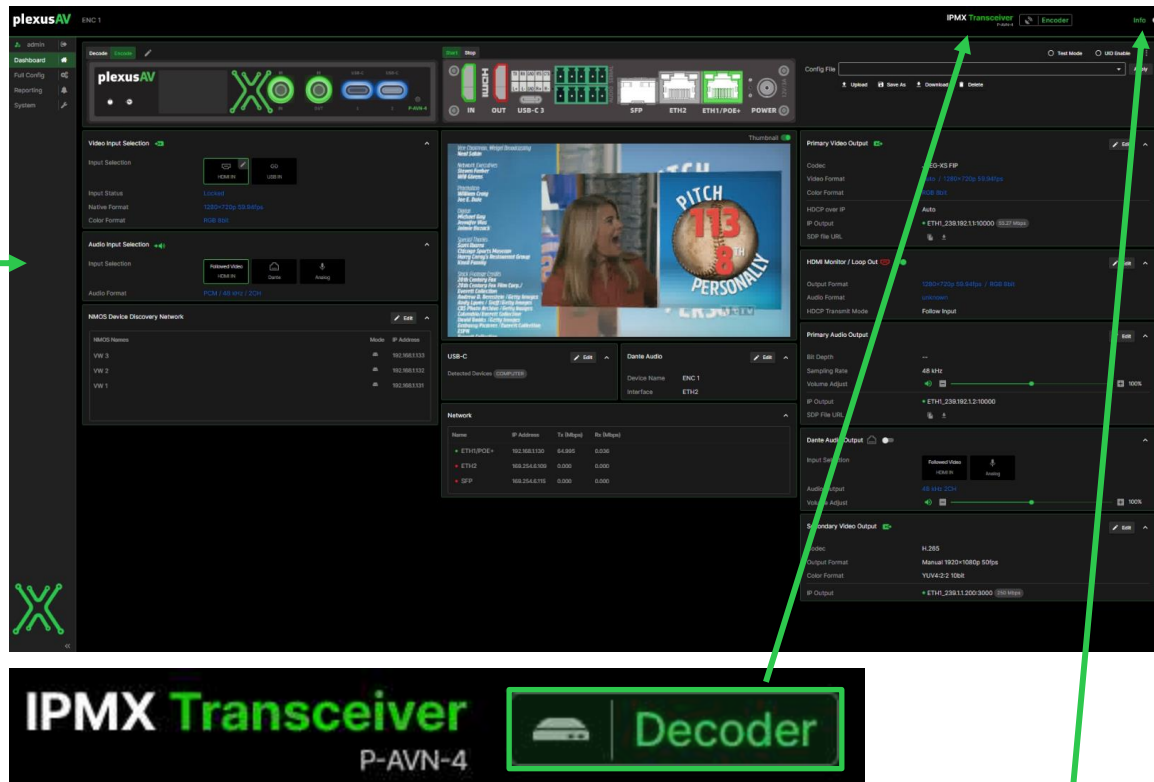
Username: admin

Password: proav101



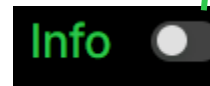
Login Prompt

3.2 Header Information



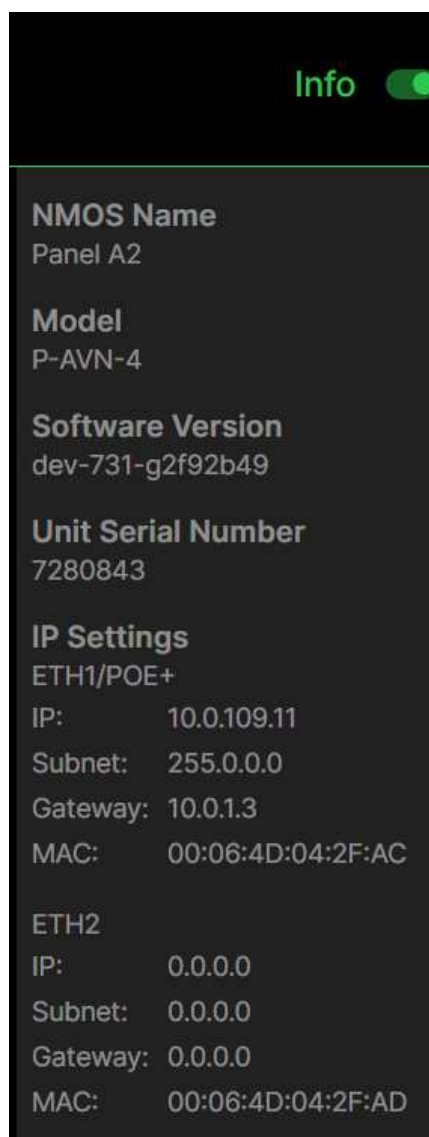
The header lets you see if the P-AVN-4 is configured for Decoder or Encoder mode immediately.

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



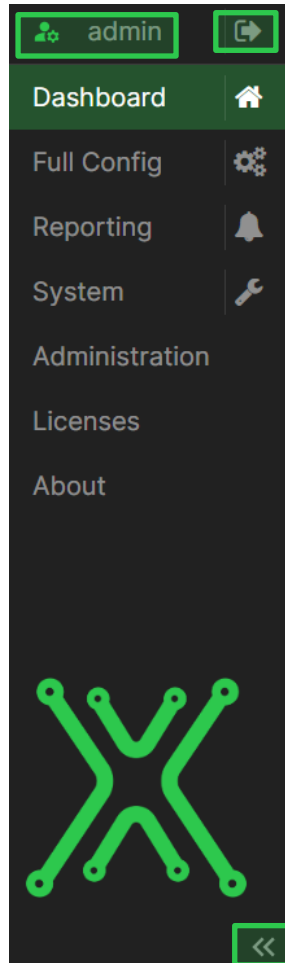
The info toggle allows you to view important information regardless of location.

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.



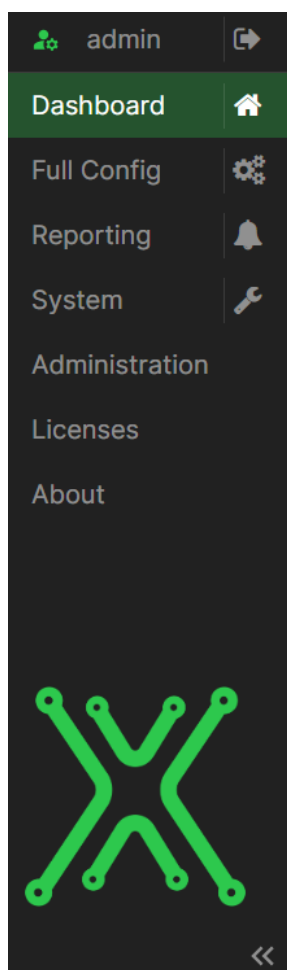
Navigation Pane

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”

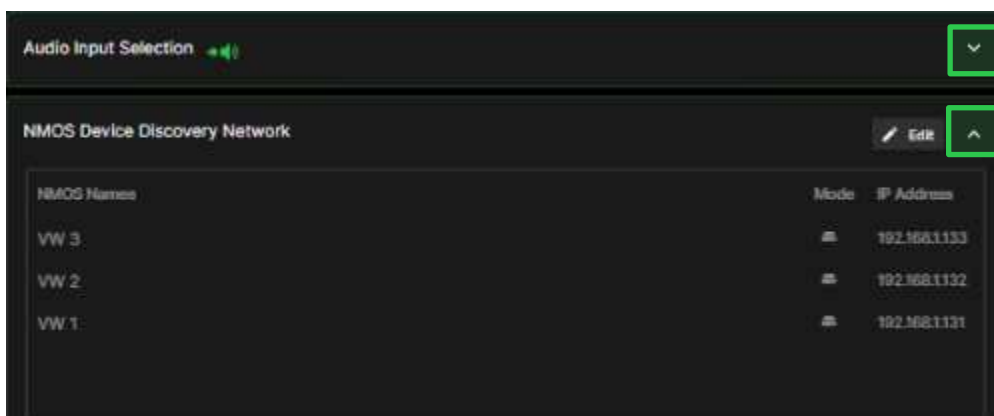
Expanded Navigation Pane





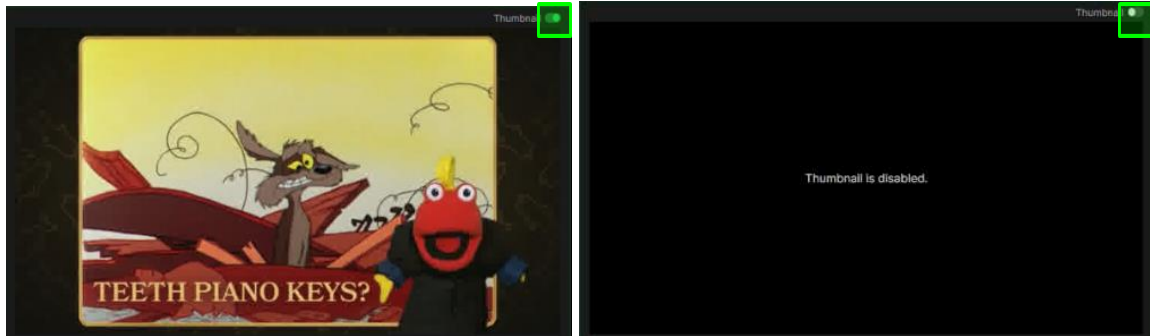
Collapsed Navigation Pane



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



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

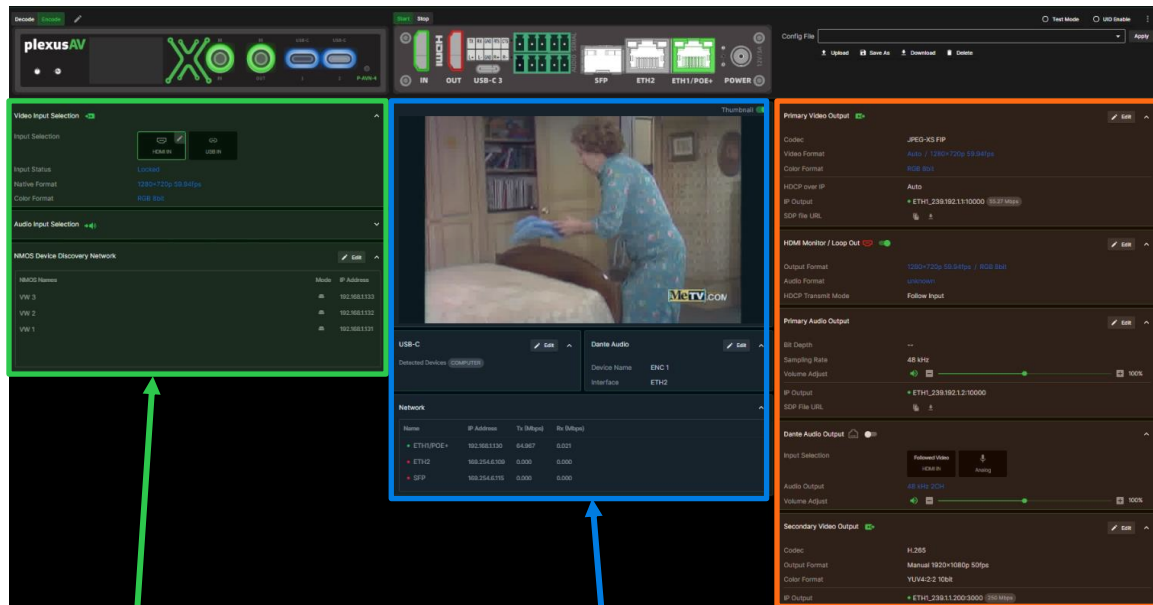


Within the Navigation Pane, the different pages available are:

| 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

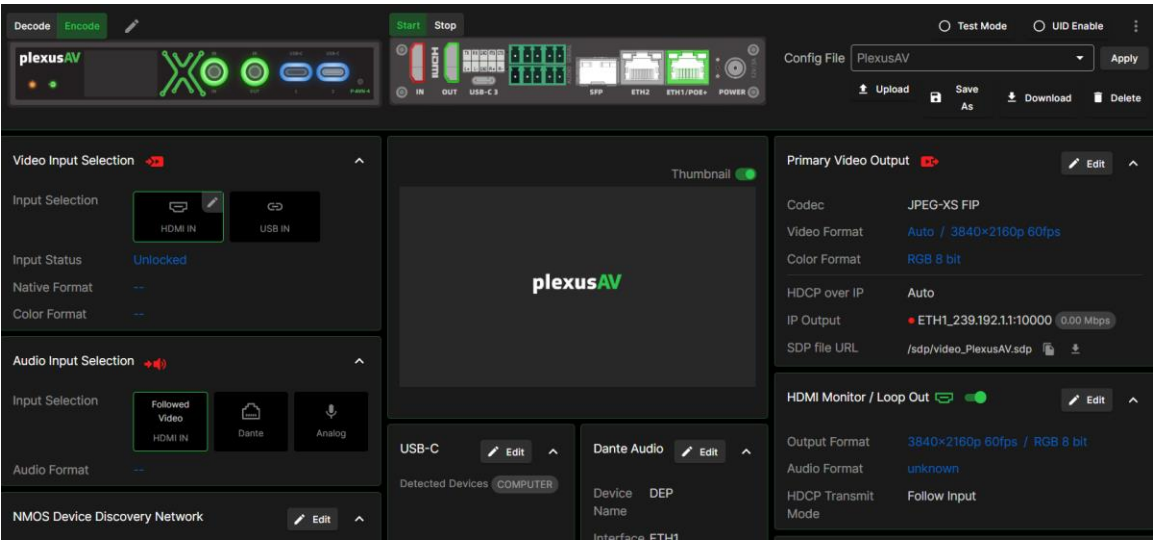
Introduction

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

| | | |
|-----|---------------------|----|
| 4.1 | DASHBOARD | 25 |
| 4.2 | FULL CONFIG..... | 25 |
| 4.3 | REPORTING..... | 39 |
| 4.4 | SYSTEM..... | 50 |
| 4.5 | ADMINISTRATION..... | 52 |
| 4.6 | LICENSES | 65 |
| 4.7 | ABOUT..... | 66 |

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

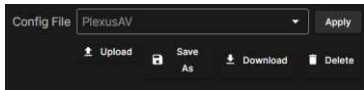
4.1.1 Main Configuration

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.



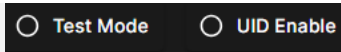
Main Configuration Panel

| 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.

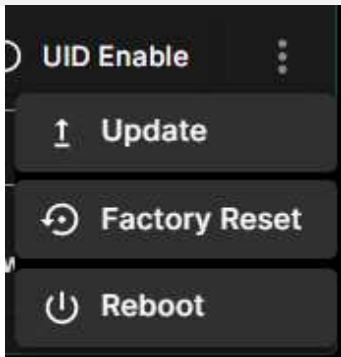
Configured files can be used to quickly and easily change the configuration of a P-AVN-4 to suit different encoding and decoding requirements.



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

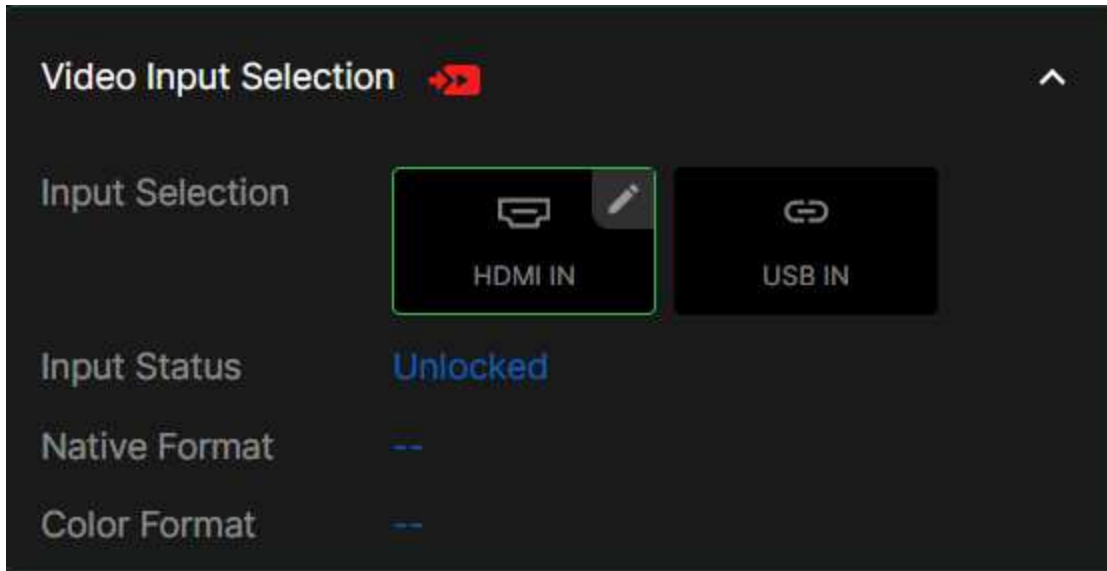
UID will flash the indicator light on the front of the unit for easy recognition



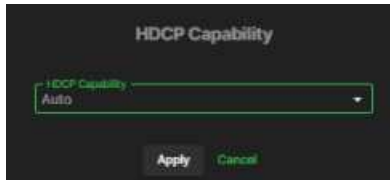
Update the unit, perform Factory Reset, and Reboot device from the Dashboard

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.



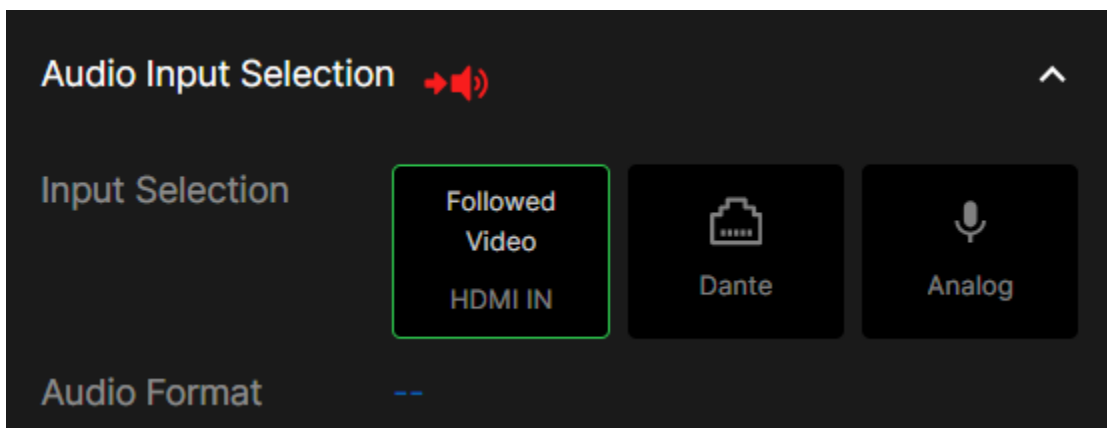
Video Input Selection Pane



Pencil Selection

4.1.3 Audio Input Selection

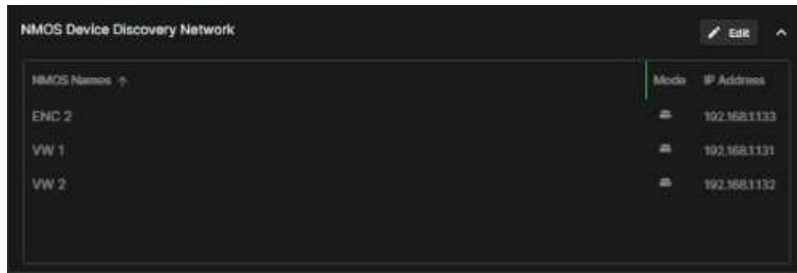
Audio Input Selection is utilized to select the input source along with providing information on the input source. Followed Video follows the audio from the HDMI IN. Dante IP, stereo signal only, allows you to choose your audio from your Dante server, allowing separate audio to play with your video.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



Audio Input Selection Pane

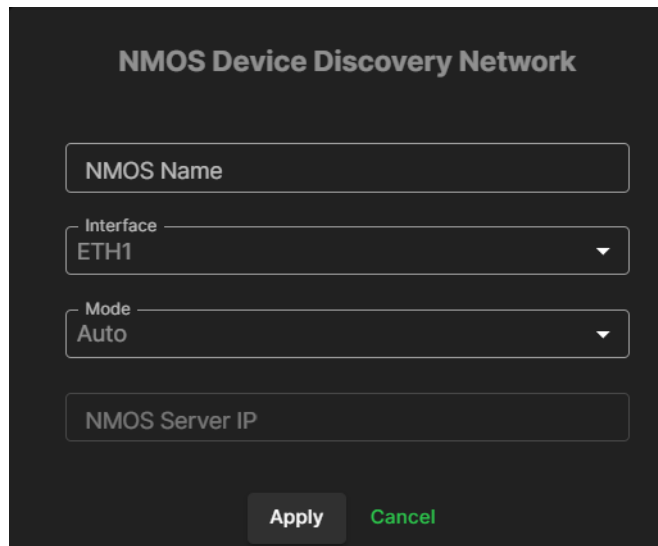
4.1.4 NMOS Discovery Network

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 Name | Mode | IP Address |
|-----------|------|---------------|
| ENC 2 | Auto | 192.168.1.133 |
| VW 1 | Auto | 192.168.1.131 |
| VW 2 | Auto | 192.168.1.132 |

NMOS Discovery Network Pane



NMOS Device Discovery Network

NMOS Name

Interface

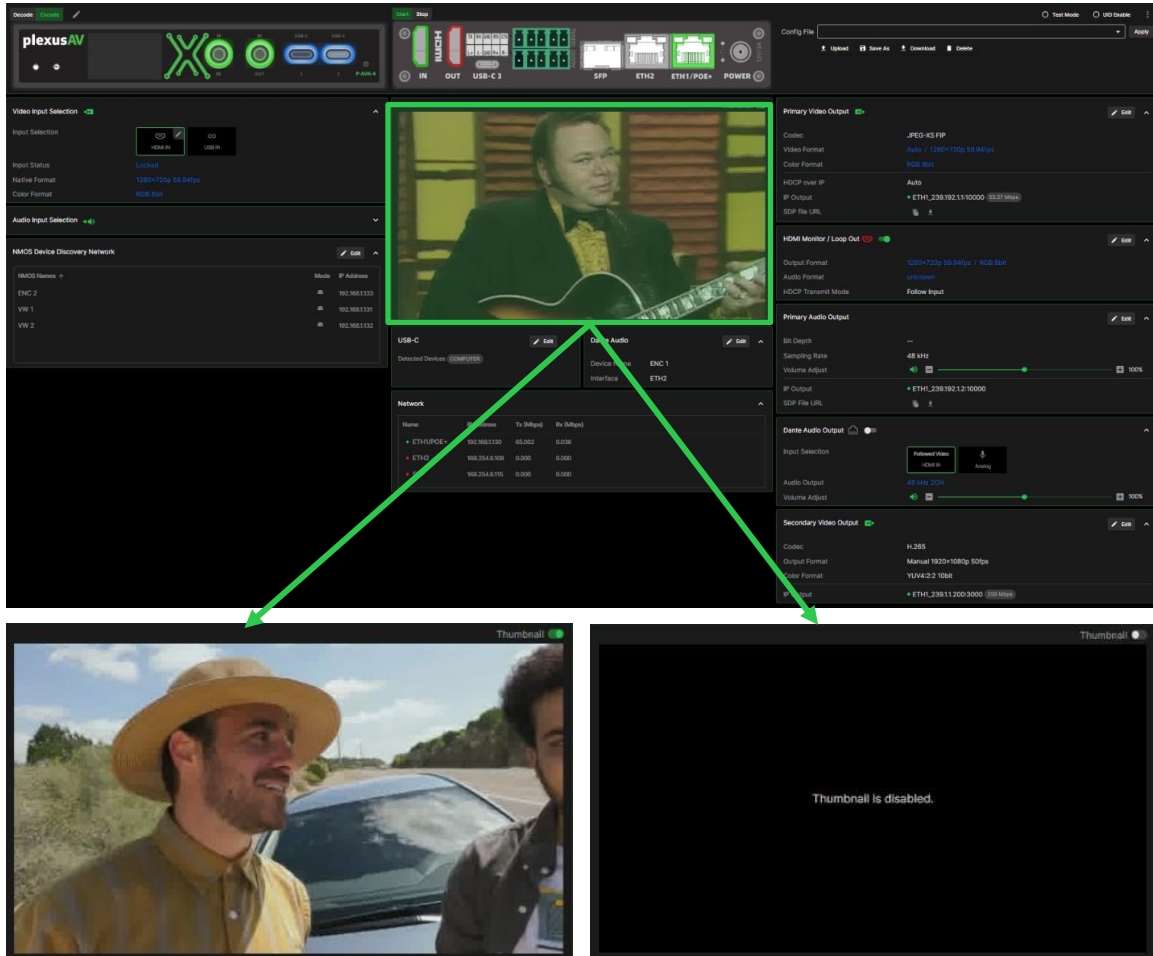
Mode

NMOS Server IP

NMOS Edit Window

4.1.5 Video Preview Panel

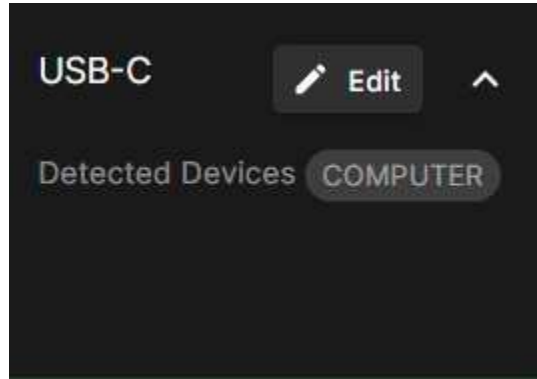
The Video Preview Panel can view a preview of the input.



Video Preview Panel

4.1.6 USB-C Panel

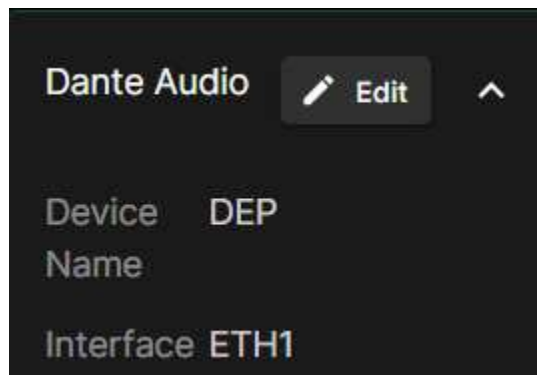
The USB-C panel can view the connected USB-C Device. USB-C 1 and 2 are used for keyboard, mouse, and webcam connections. USB-C 3 rear port is used to connect to a computer.



USB-C Panel

4.1.7 Dante Audio Panel

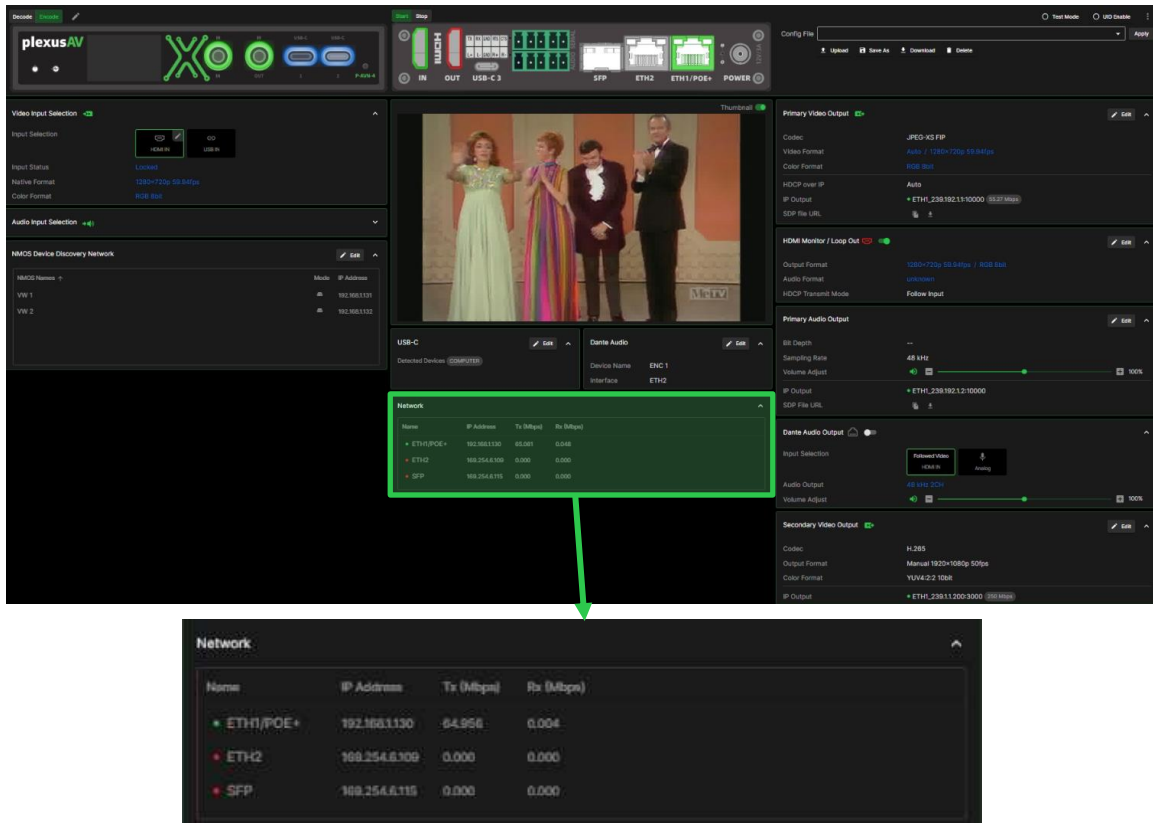
The P-AVN-4 transceiver has a Dante audio license and capability to input or output a stereo audio signal over IP. A 3rd party Dante controller can detect the P-AVN-4 using the Dante Device name configured here. Dante IP can be used as an input to the encoder or embedded into the Decoder output.



Dante Audio Panel

4.1.8 Network Preview Panel

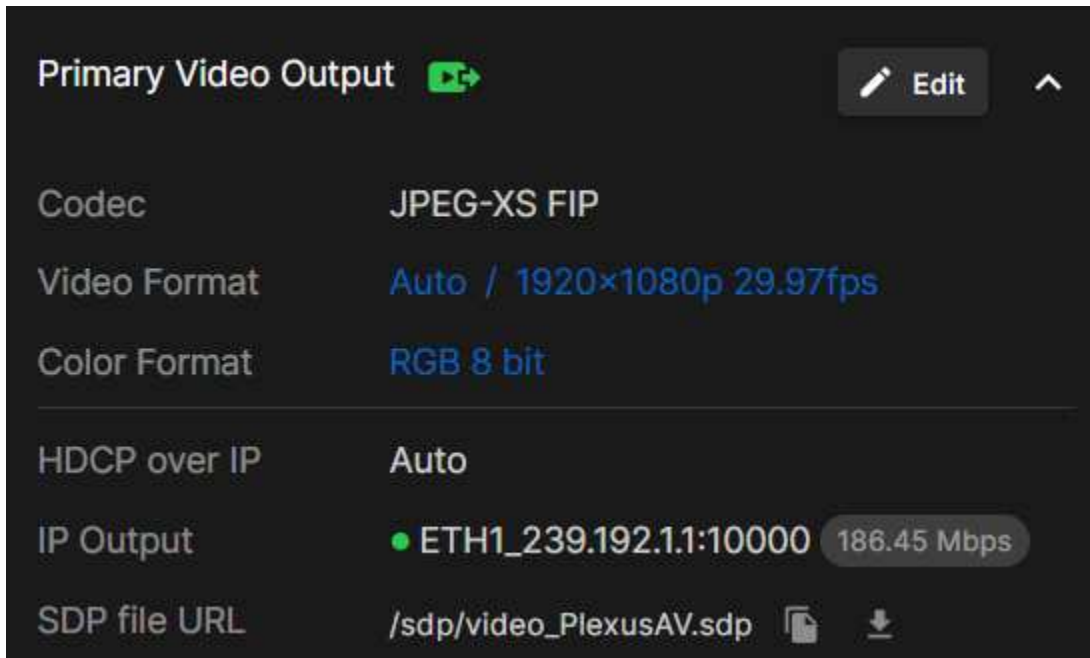
The Network Preview Panel displays network status, transfer and receive speeds.



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 Setting

Video Processing

Codec: FIP

Bitrate: High Quality

Output Format

Format Mode: Manual

Resolution: Full HD 1920x1080p

Frame Rate: 60fps

Aspect Ratio Mode: Maintain Aspect Ratio

Color Format

Color Mode: Manual

Chroma: RGB

Color Bit-Depth: 8bit

HDR Pass-through: ☒

IP Output

Video Output

Interface: ETH1

IP: 239.192.1.29

Port: 5129

ETH1_239.192.1.29:5129

Ancillary Data Output ⓘ

Interface: ETH1

IP: 239.192.2.29

Port: 5229

ETH1_239.192.2.29:5229

HDCP Transmitter: Auto

Apply Cancel

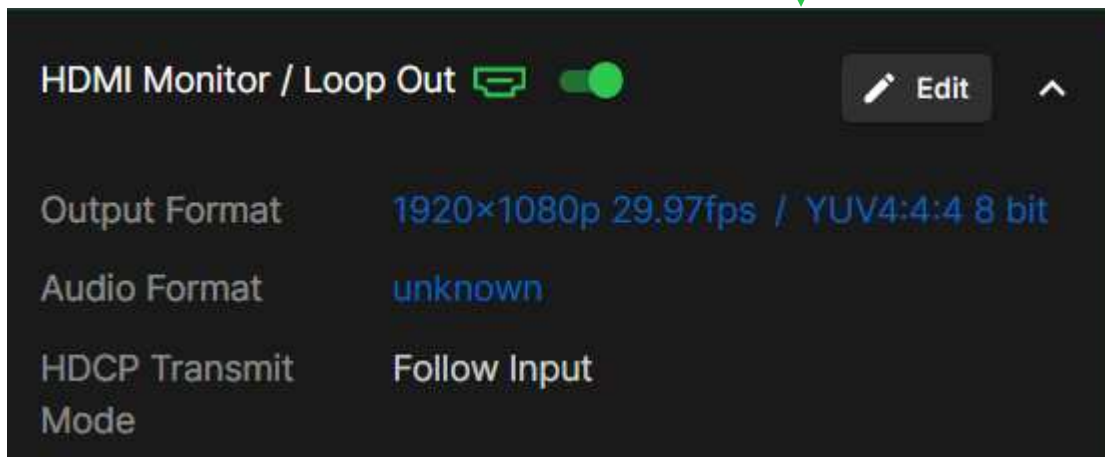
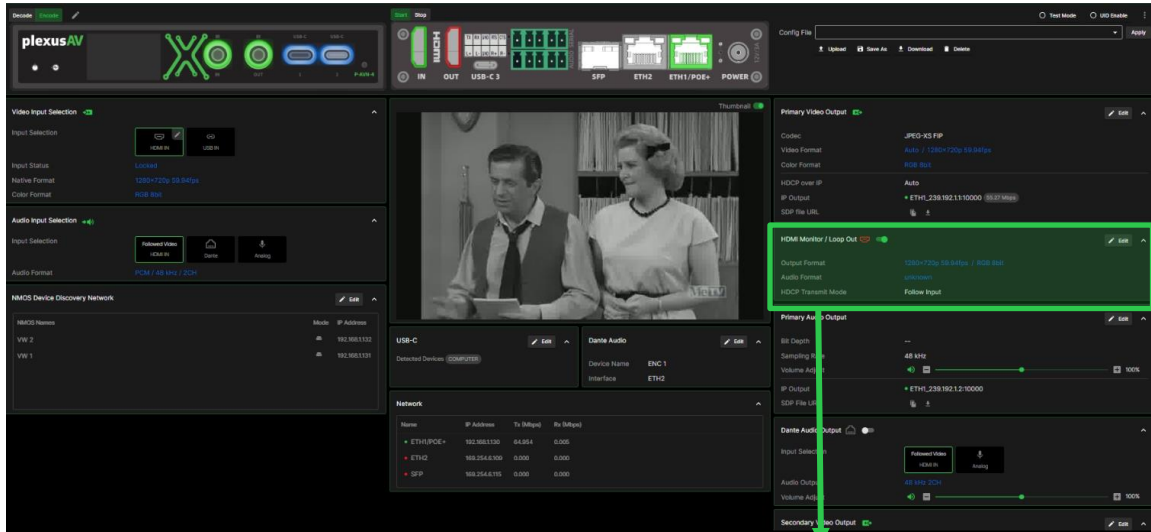
Primary Video Output Edit Window

| 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

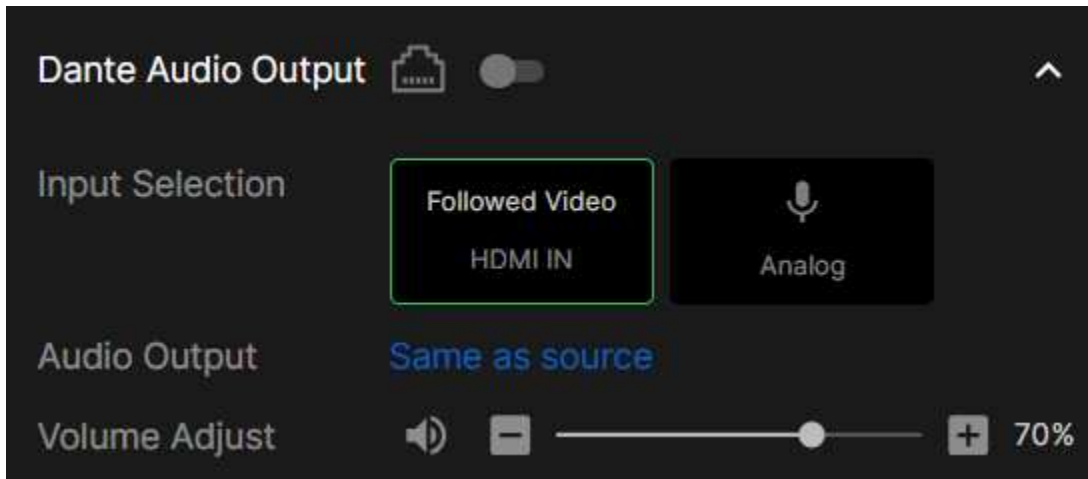
HDMI Monitor / Loop Out/In enables the ability to display your input feed for monitoring purposes. In Encoder mode this allows you to monitor the source input prior to IPMX IP output. In decoder mode it allows you to loop in content when not receiving an IPMX IP input.



HDMI Monitor / Loop Out Panel

4.1.11 Dante Audio Output Panel

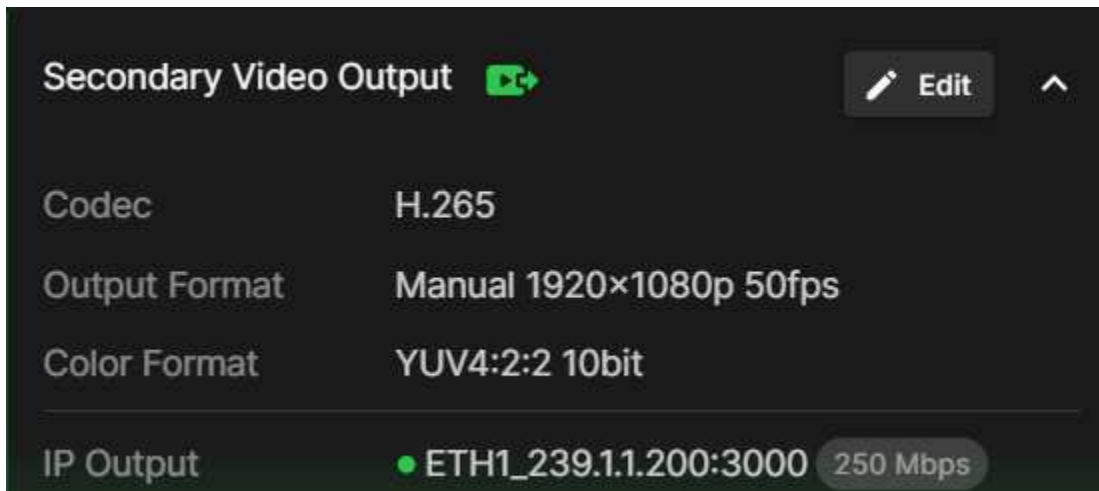
Enable or Disable Dante Audio Output and choose the input selection to use along with setting the Volume level



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 Setting

Video Processing ^

Codec: H.265

Bitrate: 0.5

Output Format

Format Mode: Manual

Resolution: 4K UHD 3840x2160p Frame Rate: 60fps

Color Format

Color Mode: Manual

Chroma: RGB Color Bit-Depth: 8 bit

HDR Pass-through: ☒

IP Output v

Apply Cancel

Secondary Video Output Setting

Video Processing v

IP Output ^

Video Output

Interface: ETH1 IP: 239.192.1.1 Port: 10000
ETH1_239.192.1.1:10000

Ancillary Data Output ⓘ



Interface: ETH1 IP: 239.192.1.3 Port: 10000
ETH1_239.192.1.3:10000

HDCP Transmitter: Auto HDCP Port: 65100

Apply Cancel

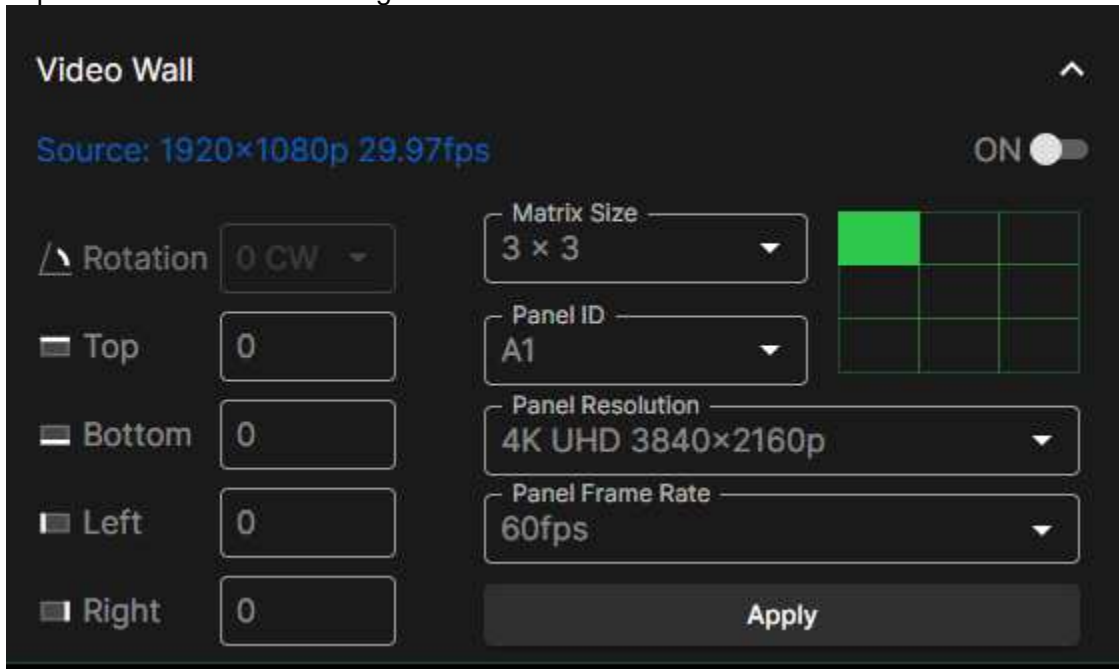
Secondary Video Output Edit Window

| 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 |

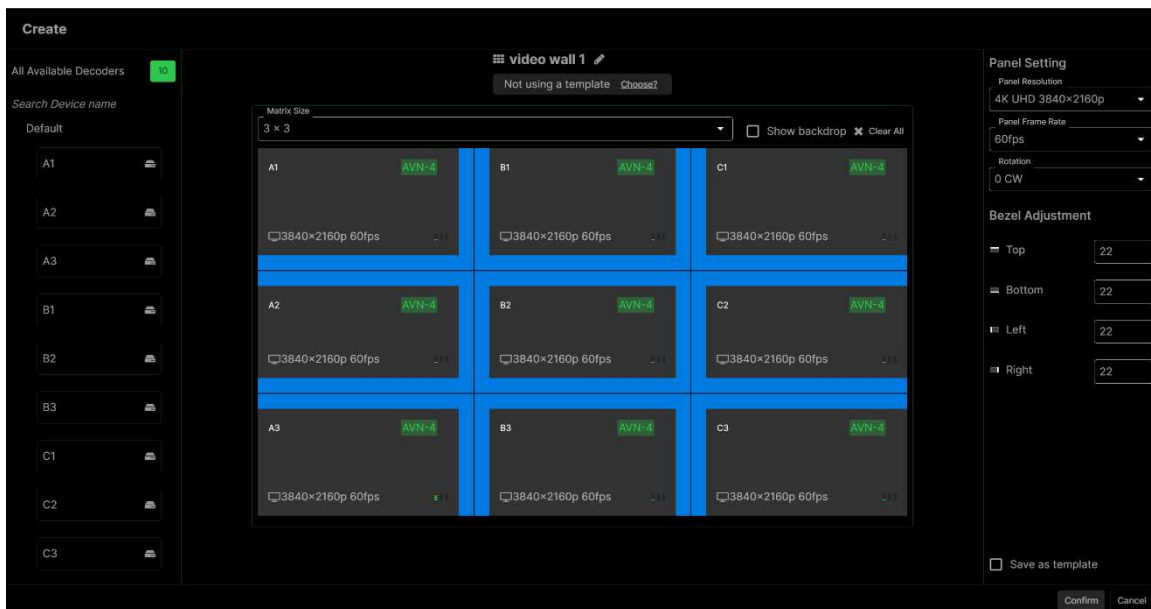
In general, ^ , v ,  and  icons may be used throughout the control panels to collapse, expand, enable, and disable status and config menus similarly.

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.

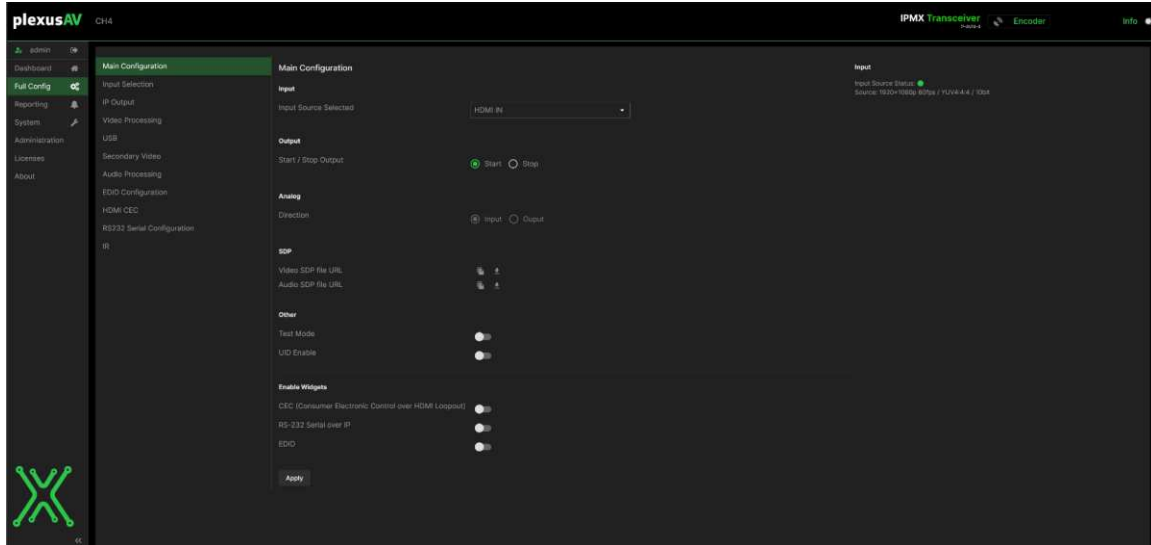


Below image is the Video Wall Configuration Tool – Available in the Visual Array:



4.2 Full Config

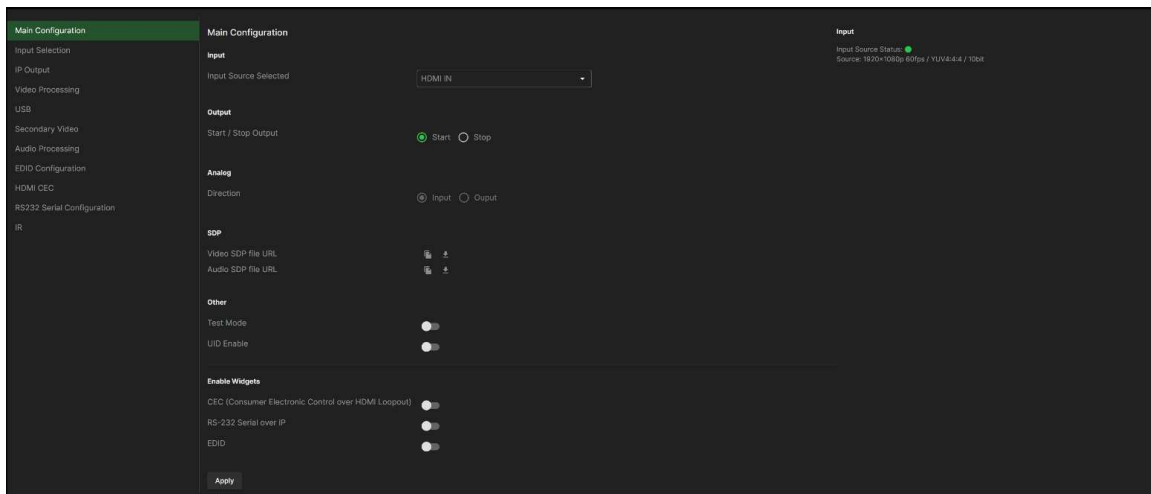
The Full config provides all features available in the dashboard, without widgets, while allowing users to enable additional widgets for enhanced customization and functionality.



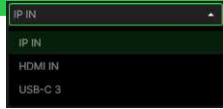


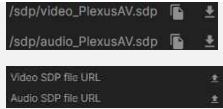


Full Config Panel






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

```
v=0
o=VU - Panel CS 1115468159 1 IN IP4 10.0.109.10
s=username
t=0 0
a=recvonly
m=video 10000 RTP/AVP 96
c=IN IP4 239.192.1.1/32
a=source-filter: incl IN IP4 239.192.1.1 10.0.109.10
a=rtmap:96 raw/90000
a=fmtp:96 sampling=VDCR-4:2:0; width=3840; height=2160; exactframerate=60000/1000; depth=10; TCS=SDR; PH=21180PH; SSN=572110-20:2017; TP=2110TPH; colorimetry=BT709; IPIRX; measuredpixclk=♦; vtotal=2258; htotal=4480;
a=ts-refclk:localmac=00:06:4D:04:2F:5E
a=mediaclk:direct=0
a=mid:primary
m=video 10000 RTP/AVP 96
c=IN IP4 239.192.2.1/32
a=source-filter: incl IN IP4 239.192.2.1 10.0.109.10
a=rtmap:96 raw/90000
a=fmtp:96 sampling=VDCR-4:2:0; width=3840; height=2160; exactframerate=60000/1000; depth=10; TCS=SDR; PH=21180PH; SSN=572110-20:2017; TP=2110TPH; colorimetry=BT709; IPIRX; measuredpixclk=♦; vtotal=2258; htotal=4480;
a=ts-refclk:localmac=00:06:4D:04:2F:5E
a=mediaclk:direct=0
a=mid:secondary
```

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

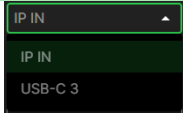

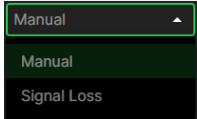
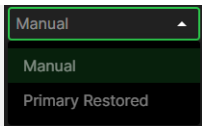

Input selection is utilized to designate primary, backup, failover, restore, and delay options, providing users with flexibility in managing their input sources.

Input Selection

| | |
|---------------|-----------|
| Input Source | IP IN ▼ |
| Backup Source | HDMI IN ▼ |
| Switch On | Manual ▼ |
| Restore On | Manual ▼ |
| Switch Delay | 30 s |

Apply

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 v , 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.

Input Selection

Video

IP Output

Interface

ETH1

-

IP

239.192.1.1

:

Port

10000

ETH1_239.192.1.1:10000

Anc Data

IP Output

Interface

ETH1

-

IP

239.192.1.3

:

Port

10000

ETH1_239.192.1.3:10000

Audio

IP Output

Interface

ETH1

-

IP

239.192.1.2

:

Port

10000

ETH1_239.192.1.2:10000

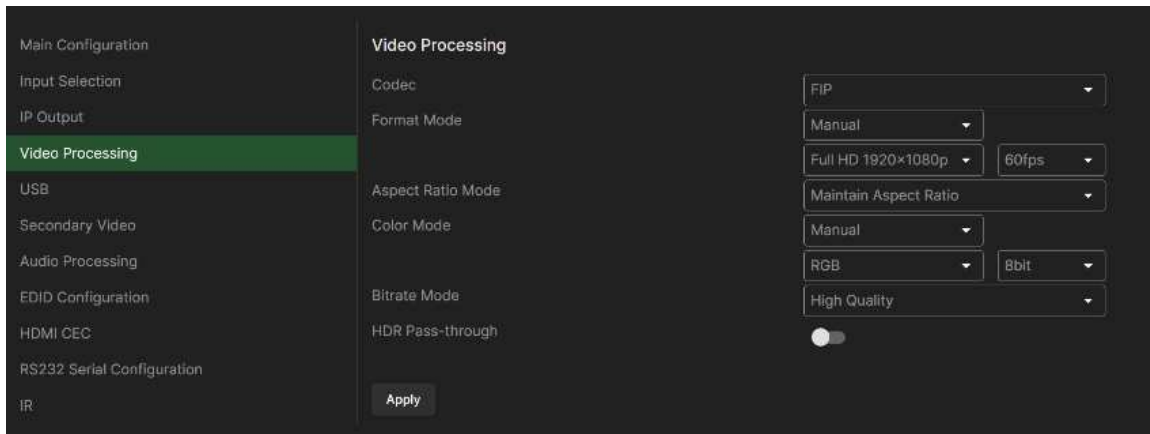
Apply

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.

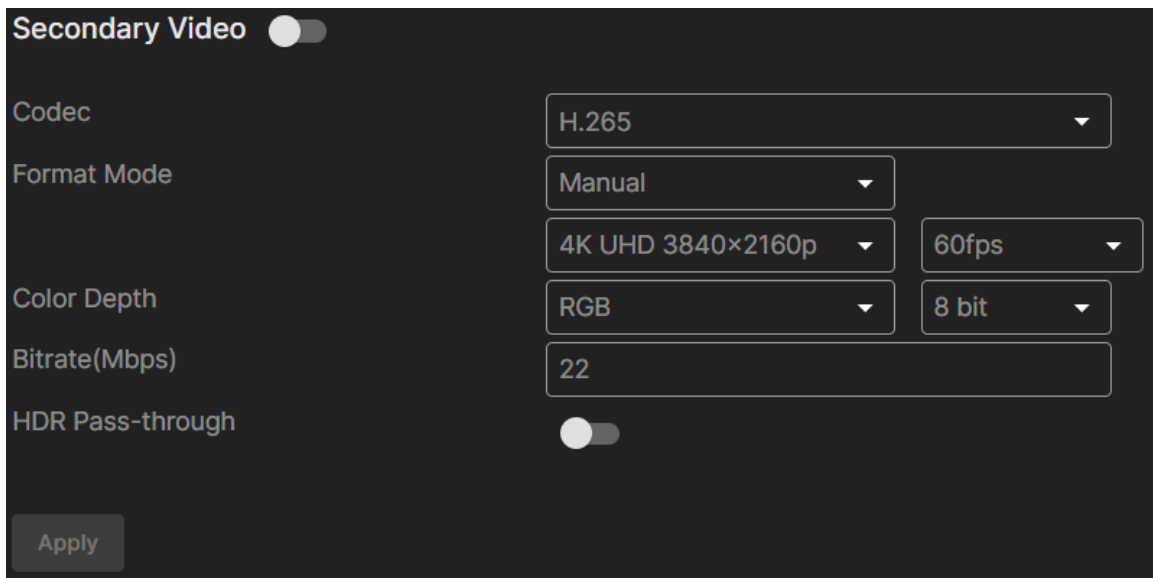
4.2.5 USB



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

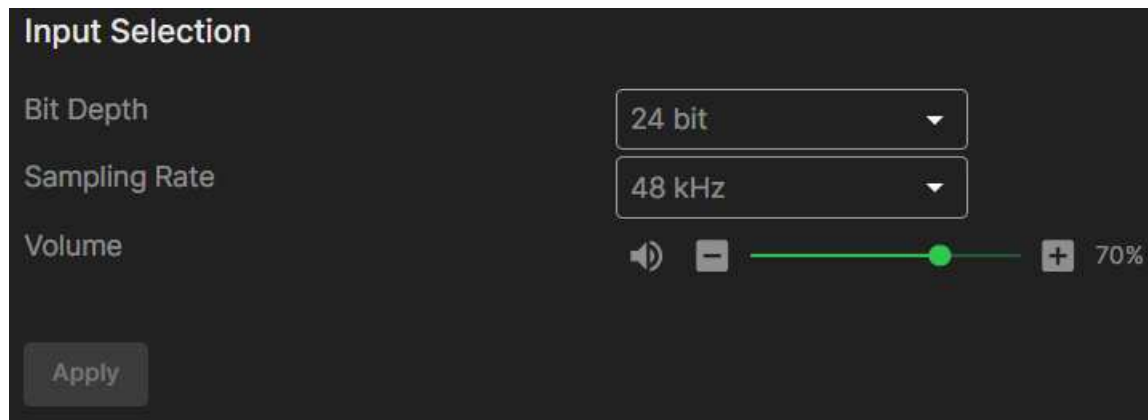
| Settings | Range | Description |
|---------------|---|--|
| Codec | H.264 / H.265 | Allows users to use H.264 or H.265 Codecs |
| Format Mode | Auto / Manual 4K UHD 3840x2160p Full HD 1920x1080p HD Ready 1280x720p | Allows users to select Format Mode between Auto or Manual. In Manual mode, users can 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     68% 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

Mode ☒ Default ☐ Pre-defined ☐ Copy ☐ Custom

| | |
|---------|---------------------|
| Video | 3840×2160p 60Hz HDR |
| Audio | LPCM 2ch |
| Vendor | PLA-0A01 |
| Product | plexusAV |

 Apply

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.



Consumer Electronics Control over HDMI Loopout

Control TV   Send

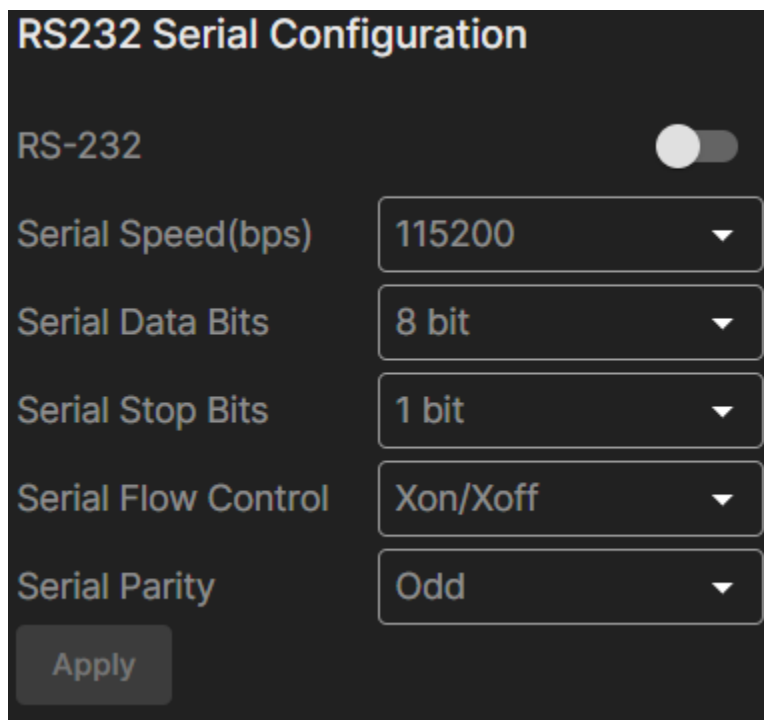
Command  Send

HDMI CEC Window

| Settings | Option | Description |
|------------|--------------|--|
| Control TV | Power On | Sends a command to connected display |
| | Power Off | |
| | Mute | |
| | Un-Mute | |
| 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 used 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.

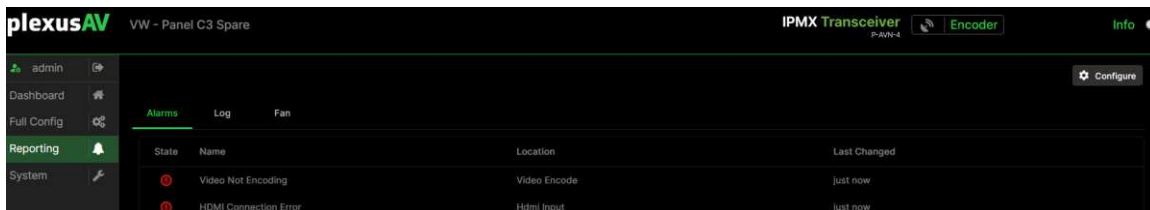


IR Configuration Window

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.

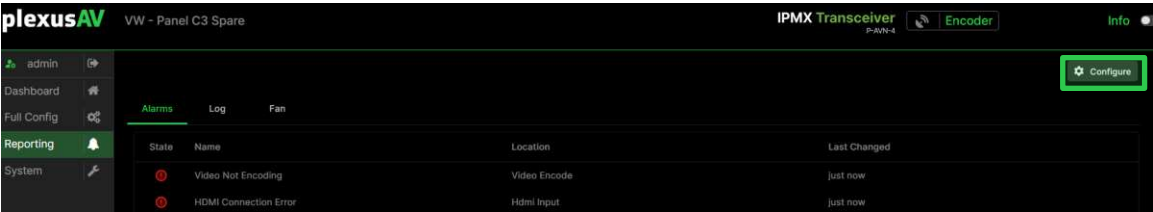
Once an error is no longer detected, it will be cleared from the active alarms window. The log files can be used to view alarm and event history.





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 | Log | Fan | |
|---|-----------------------|--------------|--------------|
| | | | |
| State | Name | Location | Last Changed |
|  | Video Not Encoding | Video Encode | just now |
|  | HDMI Connection Error | Hdmi Input | just now |

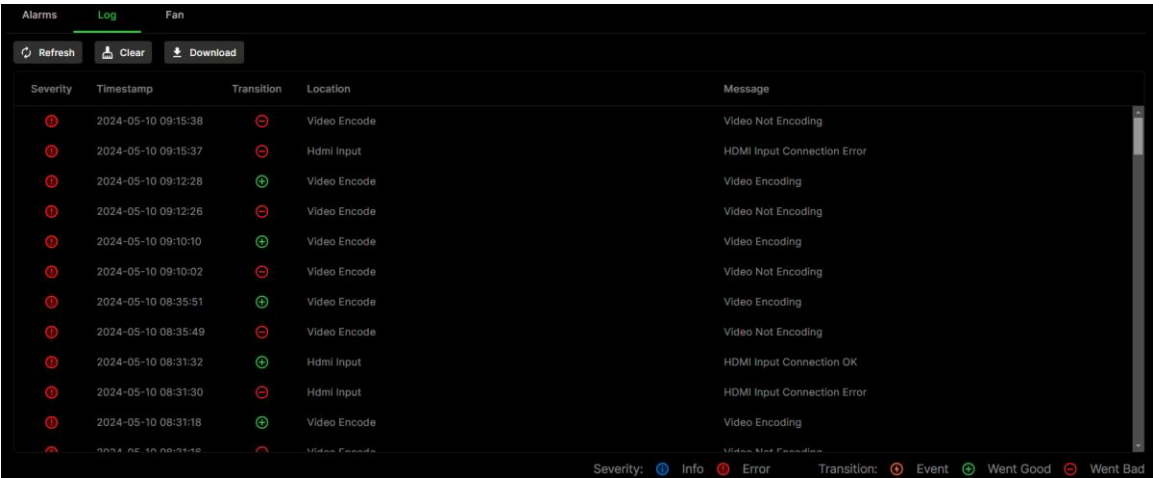
Alarms Tab

























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.



| Severity | Timestamp | Transition | Location | Message |
|---|---------------------|---|--------------|-----------------------------|
|  | 2024-05-10 09:15:38 |  | Video Encode | Video Not Encoding |
|  | 2024-05-10 09:15:37 |  | Hdmi Input | HDMI Input Connection Error |
|  | 2024-05-10 09:12:28 |  | Video Encode | Video Encoding |
|  | 2024-05-10 09:12:26 |  | Video Encode | Video Not Encoding |
|  | 2024-05-10 09:10:10 |  | Video Encode | Video Encoding |
|  | 2024-05-10 09:10:02 |  | Video Encode | Video Not Encoding |
|  | 2024-05-10 08:35:51 |  | Video Encode | Video Encoding |
|  | 2024-05-10 08:35:49 |  | Video Encode | Video Not Encoding |
|  | 2024-05-10 08:31:32 |  | Hdmi Input | HDMI Input Connection OK |
|  | 2024-05-10 08:31:30 |  | Hdmi Input | HDMI Input Connection Error |
|  | 2024-05-10 08:31:18 |  | Video Encode | Video Encoding |
|  | 2024-05-10 08:31:16 |  | Video Encode | Video Not Encoding |

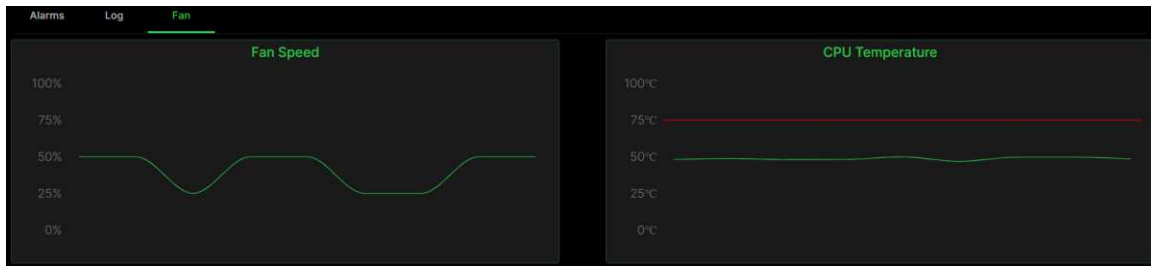
Log Tab

| 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.



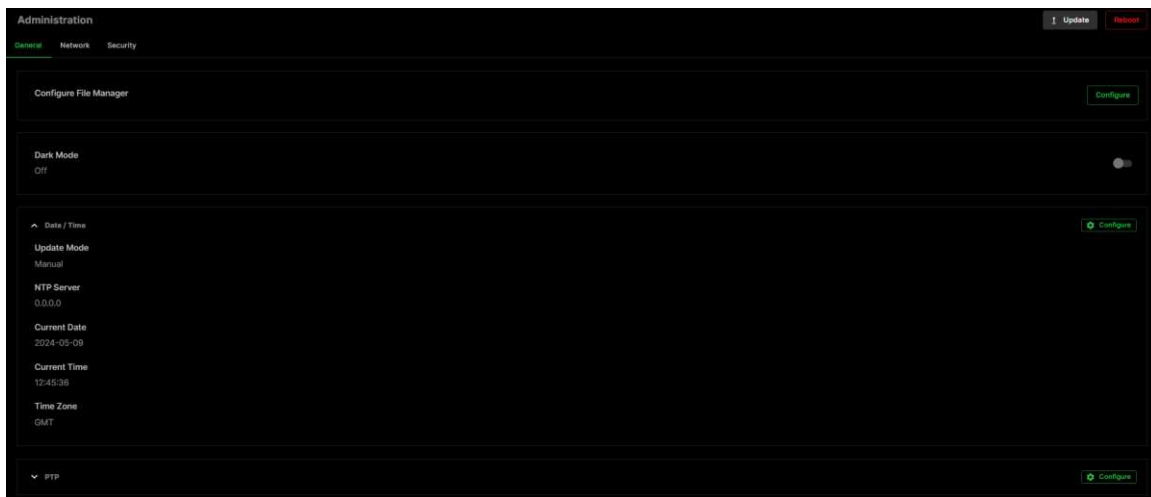
Fan Tab

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

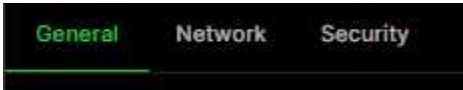
Click on the Administration tab to view global settings and maintenance tasks on the P-AVN-4. Use these menus to change system level settings such as date and time, network interface options or the username and password. These functions as well as all others available throughout the Administration panel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



Administration Main Page

4.5.1 General

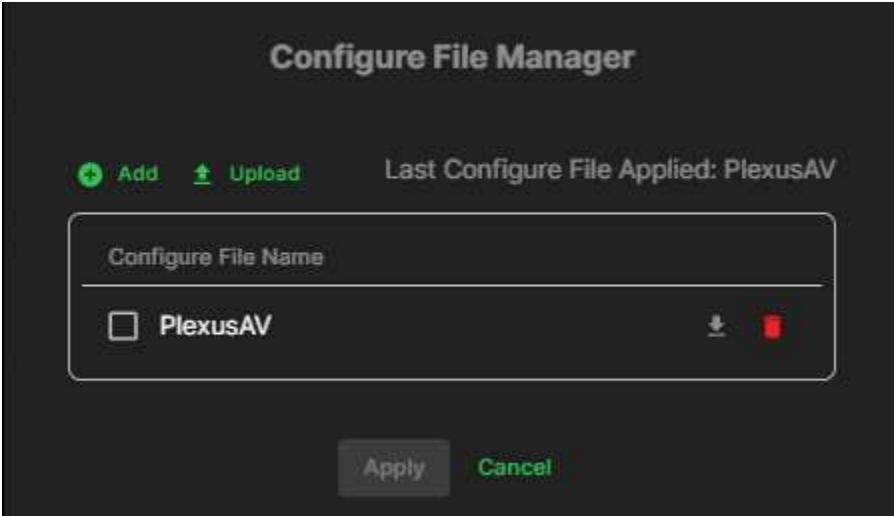
The General tab is the default page of the Administration panel. This tab is used to change the Configured File, Date, and Time as well as the PTP.



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 | | Adds a new configuration from the current settings. The user must name the configuration before creation is complete. |
| Upload Configuration | | 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 | | Select a configuration from the menu and click this button. The P-AVN-4 will apply all settings contained in the configuration selected. |
| Cancel | | Click this button to leave the Configure File Manager |

4.5.1.2 Dark Mode

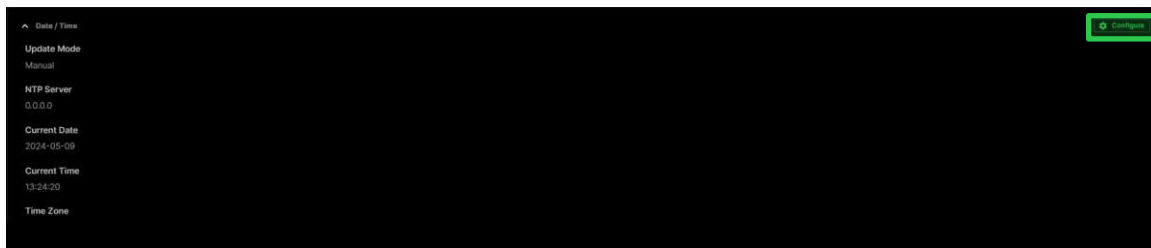
Dark mode disables the LED ring lights around the IR and USB-C ports on the front panel. It can be enabled or disabled for user preference.



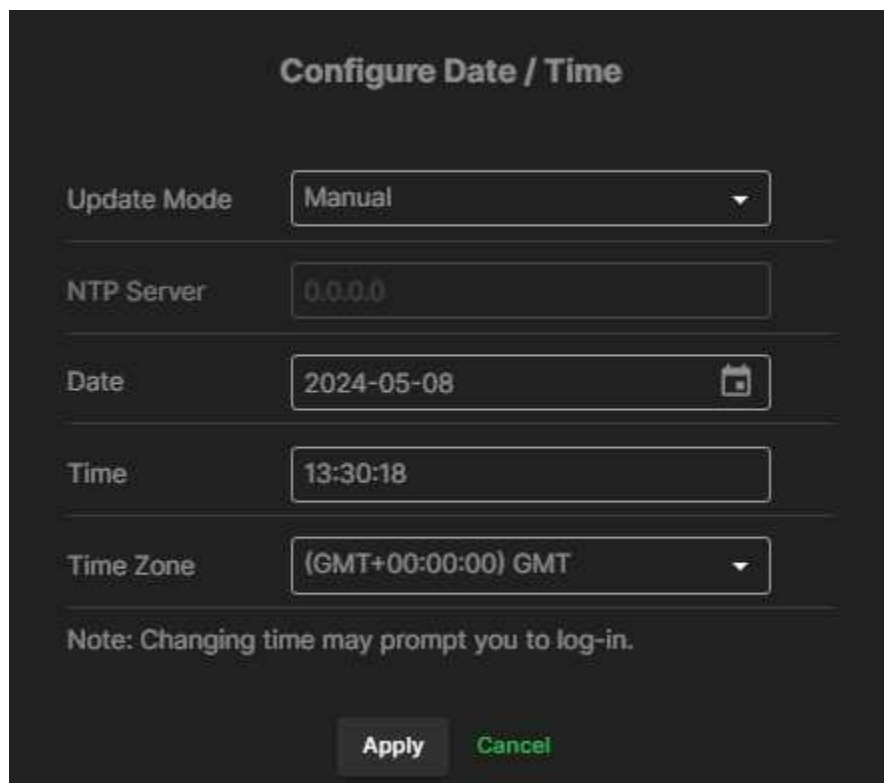
Configure Dark Mode window

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

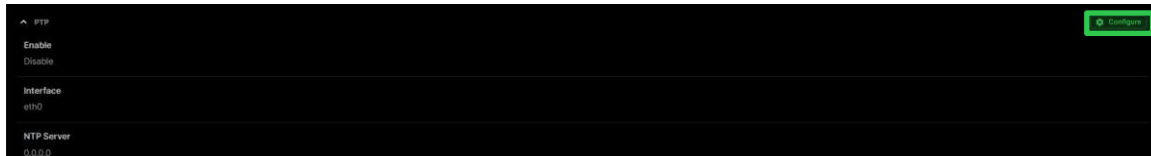
A dark-themed configuration window titled 'Configure Date / Time'. It contains five rows of settings: 'Update Mode' with a dropdown menu showing 'Manual'; 'NTP Server' with a text input field showing '0.0.0.0'; 'Date' with a text input field showing '2024-05-08' and a calendar icon; 'Time' with a text input field showing '13:30:18'; and 'Time Zone' with a dropdown menu showing '(GMT+00:00:00) GMT'. At the bottom, there is a note: 'Note: Changing time may prompt you to log-in.' and two buttons: 'Apply' and 'Cancel'.

Configure Date / Time Window

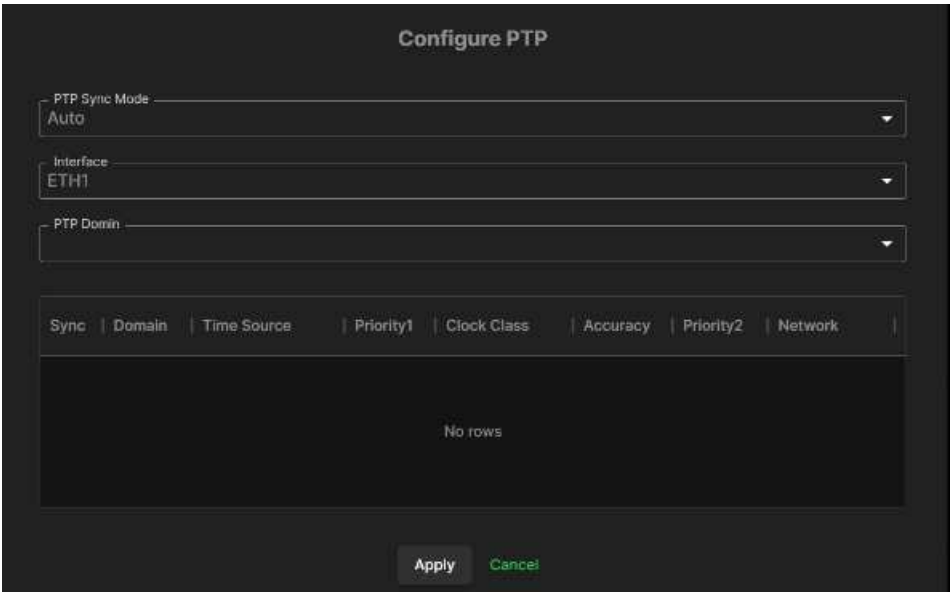
| Name | Range | Description |
|--------------------|--------------------------------|--|
| Update Mode | NTP or Manual | When set to NTP, the user provides location information of the NTP server for date and time sync. When Manual, the user will define the system Date and Time |
| NTP Server | XXX.XXX.XXX.XXX 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

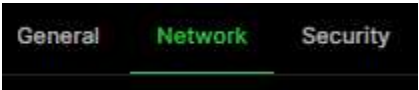


Configure PTP Window

| 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

Hostname

Default Gateway

Primary Nameserver

Secondary Nameserver

Configure Networks Menu

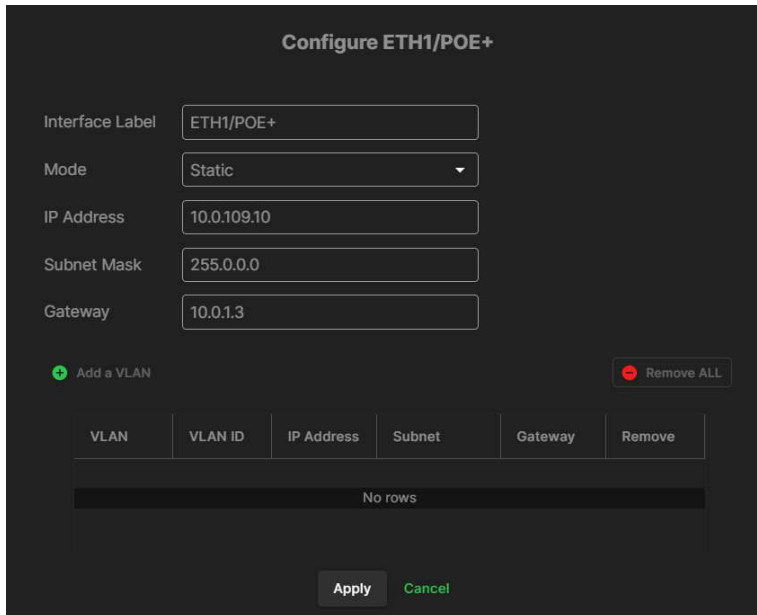
| Name | Range | Description |
|----------------------|---------------------------------|---|
| Hostname | Alphanumeric, no spaces allowed | Defines optional system name |
| Default Gateway | Eth0, Eth1 | Defines which physical port gateway address is to be used |
| Primary Nameserver | xxx.xxx.xxx.xxx | 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 |

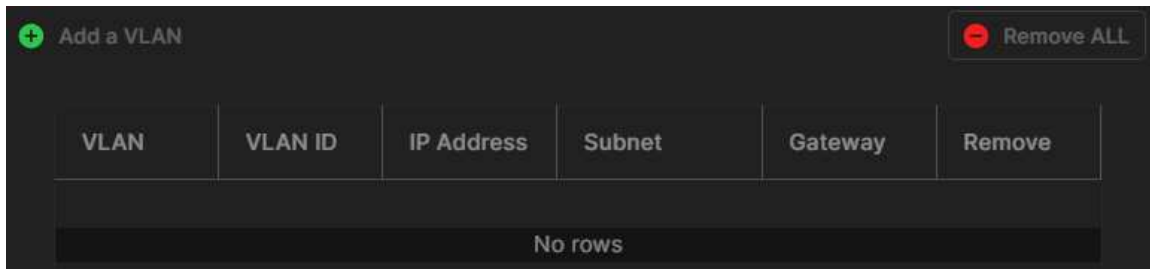
Gear Icon Location



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.

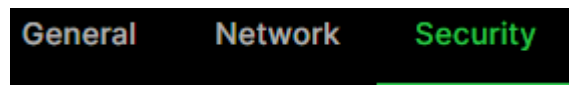
Editing VLANs

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

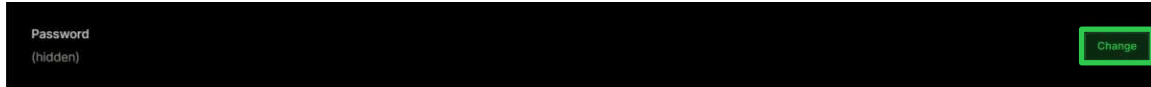
Use the ‘Security’ tab to edit the following security settings: Login Password, CSRs, and SSL/TLS Certificates



Security Tab

4.5.3.1 Changing Unit Password

The default admin-password is 'proav101'. To change the password, click the "Change" button.

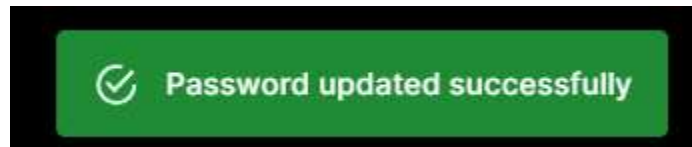


Password Selection

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

Certificate Signing Request

Country Name

US

State or Province Name

Delaware

Locality Name

Wilmington

Organization Name

PlexusAV

Organizational Unit Name

Common Name

Email Address

Generate New CSR File


Download

CA-Signed Certificate

Certificate:

Close

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

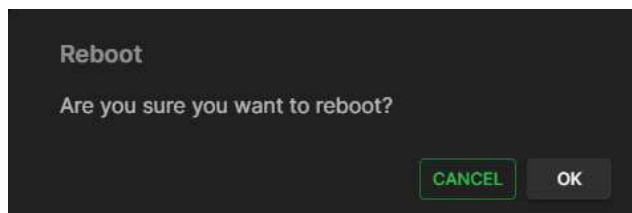
The P-AVN-4 can be rebooted from the web interface Admin page. The 'Reboot' button is in the top right corner of the Administration Control Panel.

To perform a reboot, click the reboot button. Bootup takes approximately 60 seconds.



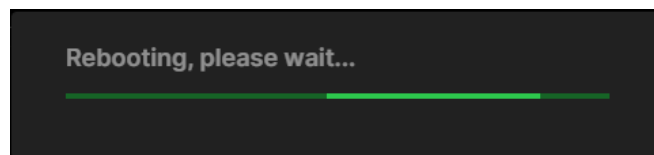
Reboot Icon Location

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



Reboot Window Prompt

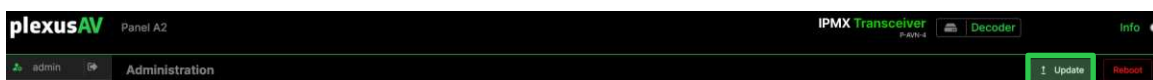
Once confirmed, a status window with a progress bar will open and be visible until the reboot is complete, and the login window is displayed.



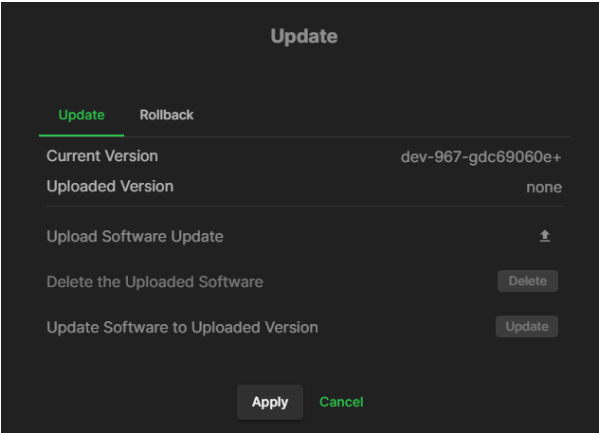
Rebooting Status

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.


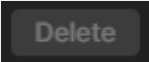



Update Icon Location



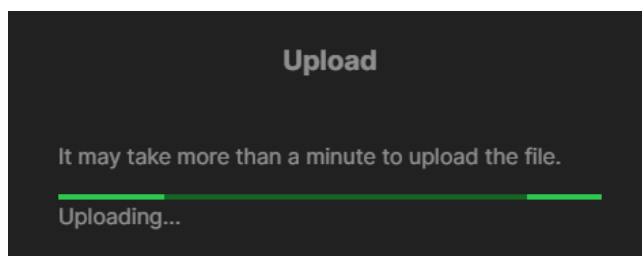
Update Menu

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.

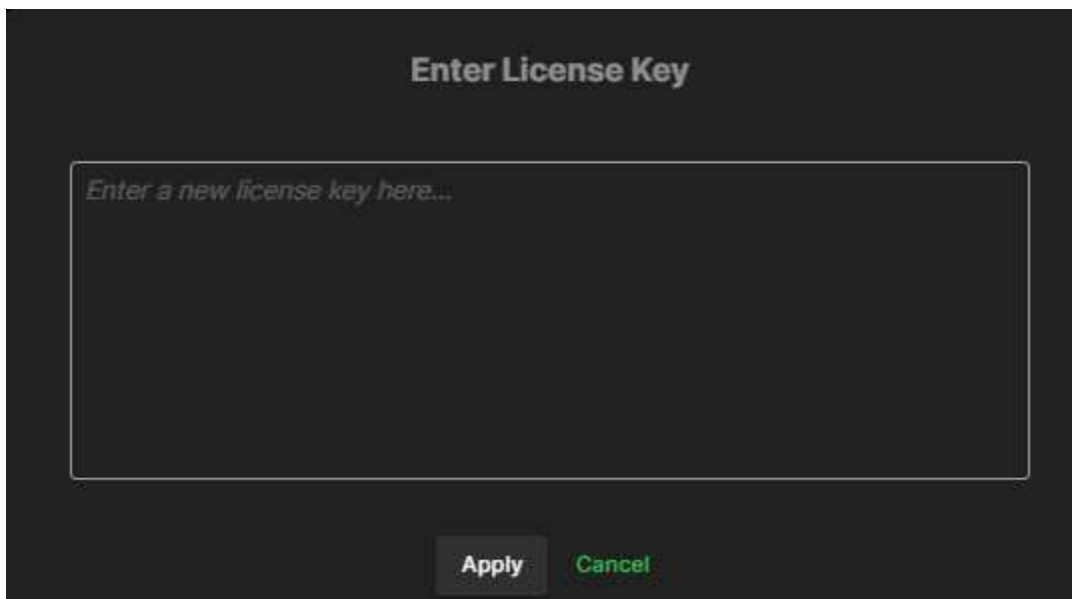


The screenshot shows the 'Licenses' page with a table of licenses. The table has four columns: Option, Supported, State, and Instances. There are three rows of licenses listed. In the top right corner, there is an 'Apply Key' button and a 'Software Support Agreement Expiration' date of 2024-04-01 11:00:00.

| Option | Supported | State | Instances |
|--------------------------------|-----------|------------|-----------|
| IMAX Transceiver, NDC | Yes | Unlicensed | 0 |
| IMAX Transceiver, Dcinle Audio | Yes | Licensed | 1 |
| IMAX Transceiver, Ddby Audio | Yes | Licensed | 1 |

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.

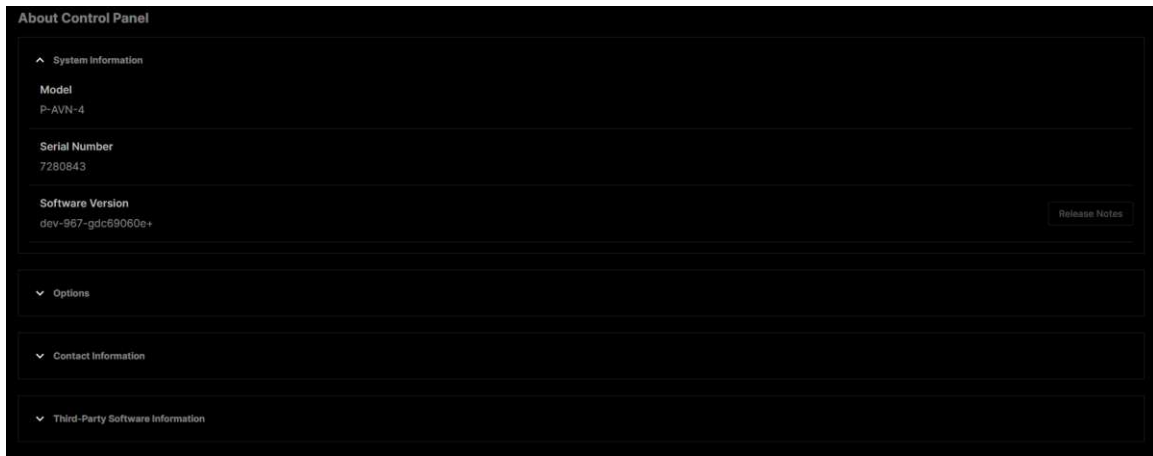


The screenshot shows a modal window titled 'Enter License Key'. It contains a large text input field with the placeholder text 'Enter a new license key here...'. At the bottom of the window, there are two buttons: 'Apply' and 'Cancel'.

Licenses Key Menu

4.7 About

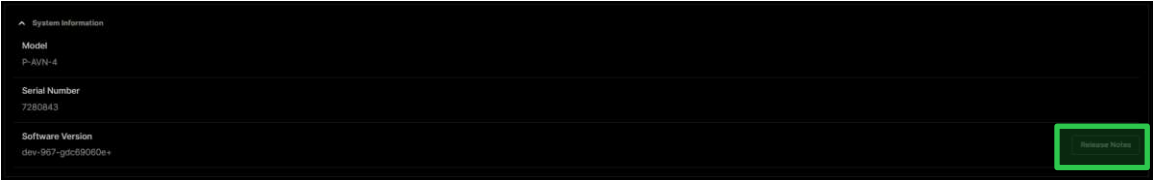
Under the “About” panel, there is information about the current software version, hardware/software options, how to contact Sencore, and third-party software being used



About Main Page

4.7.1 System Information

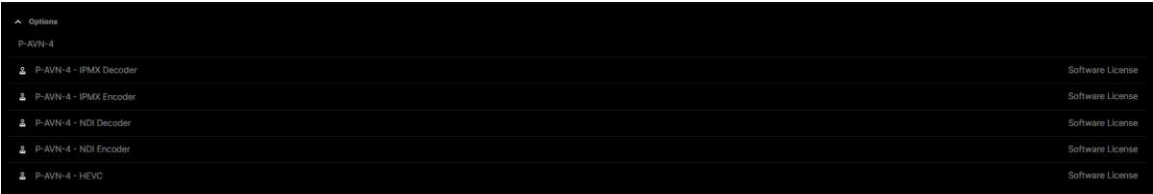
System Information displays the Model, Serial Number, and Software version.



System Information

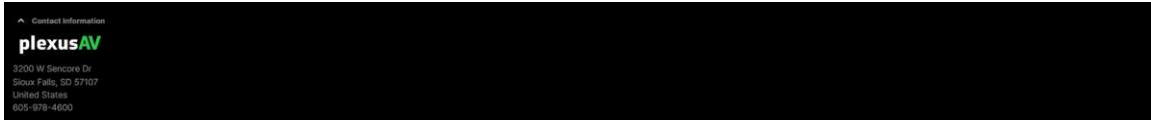
4.7.2 Options

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..... | 70 |
| APPENDIX B – ERROR AND EVENT LIST..... | 71 |
| APPENDIX C – SPECIFICATIONS | 72 |
| APPENDIX D – OPEN-SOURCE SOFTWARE | 75 |
| APPENDIX E – WARRANTY | 78 |
| APPENDIX F – SUPPORT AND CONTACT INFORMATION | 78 |
| APPENDIX G – ACCESSORIES | 79 |

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 |
| freedfont | 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. |
| sdpttransform | 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 procure@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



SE



NO

Direktronik AB | Box 234, 149 23 Nynäshamn | Besöksadress Konsul Johnsons väg 15 149 45 Nynäshamn
Telefon 08 52 400 700 | Fax | Epost info@direktronik.se | Org.nr 556281-9663 | Bankgiro 922-0179

plexusAV

Copyright © 2024 PlexusAV.

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) |