

# PlexusAV

## P-AVN-6-S IPMX ST 2110 Uncompressed Transceiver



### OVERVIEW

The P-AVN-6-S IPMX Transceiver is a high-performance AV-over-IP device designed for uncompressed SMPTE 2110 and compressed JPEG-XS video and audio transport across IPMX and SMPTE ST 2110 networks. Featuring native 12G-SDI I/O with integrated Genlock and PTP-to-Genlock conversion, the P-AVN-6-S bridges traditional SDI baseband infrastructure and modern IP-based workflows from a single open-standard platform. Supporting 1 GbE to 25 GbE network infrastructures with ST 2022-7 hitless redundancy, the P-AVN-6-S delivers the signal integrity and timing precision required for the most demanding broadcast, live production, and professional AV environments.

### WHY CHOOSE THE P-AVN-4D IPMX DECODER?

- Native 12G-SDI I/O: Full 12G/6G/3G/HD-SDI input and output with auto-detection - no external converters needed.
- HDMI loopout for efficient monitoring and looping into other PlexusAV products.
- Uncompressed & Compressed: Supports uncompressed IPMX (up to 18 Gbps) and JPEG XS/FIP/TDC (up to 2.5 Gbps).
- IPMX & ST 2110 Compliant: Open-standards support for seamless interoperability across IPMX and SMPTE ST 2110 environments.
- Dual SFP28 Ports with Hitless Redundancy: ST 2022-7 hitless switching across independent primary and secondary network paths.
- PTP-to-Genlock Conversion: Synchronize SDI outputs to IP-based timing with  $\pm 12$  pixel phase accuracy.
- Full USB-C KVM support
- Professional Audio: AES67 and Dante (up to 8x8 channels) audio transport with PCM, Dolby, and DTS support.
- Flexible Management: HTTP(S) WebUI, REST API, NMOS (IS-04/05/08/09/11), and plexusAV Visual Array integration.

### APPLICATIONS



**STADIUMS & LARGE VENUES**  
Distribute high-quality SDI and uncompressed IP video across complex venue infrastructures with dual SFP28 25GbE network support and hitless redundancy.



**GOVERNMENT COMMAND CENTERS**  
Mission-critical uptime ensured by ST 2022-7 hitless redundancy across dual independent network paths with precise PTP-based synchronization.



**BROADCAST STUDIO & LIVE PRODUCTION**  
Native 12G-SDI I/O and PTP-to-Genlock conversion enable frame-accurate integration with existing SDI infrastructure and modern IP broadcast workflows.



**HYBRID SDI/IP CONTROL ROOMS**  
Seamlessly bridge traditional baseband SDI environments and open-standard IPMX/ST 2110 IP distribution from a single transceiver platform.



**LIVE EVENTS & PRO AV**  
Scale AV-over-IP and hybrid deployments with support for uncompressed, JPEG XS, H.264, and H.265 codecs across 1 GbE to 25 GbE network environments.



**HOUSE OF WORSHIP**  
Integrate existing SDI camera systems into modern AV-over-IP distribution networks without replacing legacy equipment.

### KEY FEATURES

#### NATIVE 12G-SDI I/O

- 12G/6G/3G/HD-SDI: Auto-detection of signal format; BNC connector with 75  $\Omega$  impedance and 800 mVpp  $\pm 10\%$  drive level.
- Integrated Genlock BNC: Configurable as input (decode) or output (encode) for PTP-to-Genlock and external reference workflows.
- HDMI Loop Out: Local monitoring of incoming SDI source via HDMI output.

#### UNCOMPRESSED & COMPRESSED VIDEO TRANSPORT

- Uncompressed IPMX: Up to 18 Gbps over IPMX and SMPTE ST 2110-20 networks.
- JPEG XS / FIP / TDC: Compressed transport at up to 2.5 Gbps for bandwidth-constrained segments.

#### DUAL SFP28 WITH 2022-7 HITLESS REDUNDANCY

- 10 GbE / 25 GbE: Dual SFP28 cages accept MSA-compliant SFP+ and SFP28 transceivers.
- ST 2022-7 Hitless Switching: Zero-loss failover between independent primary and secondary network paths.

#### PRECISION TIMING & GENLOCK

- PTP Support: IEEE 1588-2008 (PTPv2) per ST 2059-2 with support for redundant PTP clock domains.
- PTP-to-Genlock Conversion: Synchronize SDI outputs to IP-based timing within  $\pm 12$  pixels.
- Genlock Reference Formats: NTSC/PAL Black Burst and Tri-level sync (1080p, 1080i, 720p, 576i, 480i).

#### USB-C KVM OVER IP

- USB-C KVM over IP

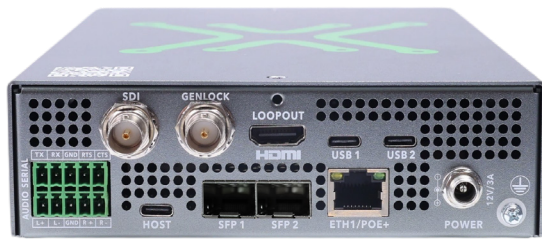
#### PROFESSIONAL AUDIO INTEGRATION

- AES67: Standards-based audio transport for professional broadcast environments.
- Dante Audio: Native Dante support (up to 8x8 channels).
- Extended Codec Support: PCM, Dolby Digital/Plus/TrueHD/Atmos, DTS 5.1/HD/X, 16-bit and 24-bit depth.

#### EFFICIENT DESIGN

- 1RU height & 1/3rd RU width rackmountable unit
- Front to back airflow with user-servicable dust filters
- Front panel controls and LCD for easy configurability





#### REAR PANEL PORTS

**SDI Interfaces:**

12G-SDI Port: Auto-detects 12G / 6G / 3G / HD-SDI signal format  
Encode mode: SDI Input → IPMX stream output  
Decode mode: IPMX stream → SDI Output  
SMPTE ST-2082 (12G), ST-2081 (6G), 424M (3G), 292M (HD-SDI)

Genlock Port: Encode mode: Genlock Output (PTP-derived)  
Decode mode: Genlock Input (external reference)  
Accepts NTSC Black Burst, PAL Black Burst, Tri-level sync

**HDMI Interface:**  
HDMI Loop Out: Type-A Female, HDMI 2.1a – local monitoring of SDI input source

**Network Interfaces:**

SFP28 1 (Primary): MSA-compliant SFP+ / SFP28; 10GbE (802.3ae: 10GBASE-SR/LR) 25GbE (802.3by: 25GBASE-SR/CR/CR-S; 802.3cc: 25GBASE-LR)

SFP28 2 (Secondary): MSA-compliant SFP+ / SFP28; 10GbE / 25GbE – ST 2022-7 hitless independent redundancy path

RJ45 Ethernet: 100M / 1000M adaptive; PoE+ (802.3at); Management, JPEG-XS, redundant power; WebUI / API default interface

**Analog Audio:**  
Connector: 5-Pin Phoenix (Detachable captive-screw)  
Signal: Balanced Left/Right; Input/Output switchable

**Serial Communication:**  
Connector: 5-Pin Phoenix (Detachable captive-screw)  
Protocol: RS-232; TX/RX with CTS/RTS capable pins

**USB:**  
USB-C Port (1x Host, 2x Device): USB 2.0 Host mode, USB 2.0 Device mode

**Power:**  
Power Supply: Internal PSU with C14 connector (120V / 240V, 3-prong locking)  
Redundant Power: External PSU + PoE+ on RJ45 for redundant power delivery

#### FRONT PANEL

**Display:**  
Color LCD: Status display - IP address, stream state, boot status, system info  
Display Behavior: Wakes on button interaction; supports dark mode and sleep mode

**Navigation:**  
Push Buttons: Up, Down, Left, Right, Enter, Back  
Front Panel Lock: Configurable lock to prevent accidental changes

**LEDs:**  
Power LED (Red): Solid Red = Power On; Off = Power Off  
Status LED (Green): Green = No errors, UID inactive  
Status LED (Amber): Amber = Error detected, UID inactive  
Status LED (Both): Alternating Green/Amber = UID Active (overrides solid state)  
UID LED: Front and rear UID LEDs share same behavior; activated via UI, API, or front panel

**Factory Reset:**  
Recessed Button: Use paperclip or tool; press and hold 10 seconds

#### ST 2110 COMPLIANCE

**Technical Standards:** ST 2110-10, ST 2110-20, ST 2110-21, ST 2110-22, ST 2110-30, ST 2110-40, ST 2059-2, ST 2022-7

#### VIDEO AND AUDIO SPECIFICATIONS

**Codec Support:**  
Uncompressed: IPMX TR-10-2 / SMPTE ST 2110-20; up to 18 Gbps  
JPEG XS / FIP / TDC: Up to 2.5Gbps

**Resolutions:** Broadcast resolutions up to 4Kp60 and 1080i60

**Bit Depth & Color Space:**  
YCbCr 4:2:0: 8-bit, 10-bit  
YCbCr 4:2:2: 8-bit, 10-bit  
YCbCr 4:4:4: 8-bit, 10-bit  
RGB: 8-bit, 10-bit per color

**Color Gamut:** BT.709, BT.2020, DCI-P3  
**HDR Formats:** HDR10, HLG  
**Video Switching:** Seamless switching between color gamuts  
Instant stream switching in PTP mode

**Channel Count:**  
Sender: 2, 6, or 8 channels  
Receiver: 1, 2, 6, or 8 channels

**Audio Transport:**  
AES67: Standards-based IP audio transport  
Dante: Up to 8x8 channels

**Analog Audio I/O:**  
5-Pin Phoenix: Balanced Left/Right; Input/Output switchable

#### GENLOCK

**Reference Signals Supported:**  
NTSC Black Burst  
PAL-M / PAL-B/G/I/D / PAL-N Black Burst  
Tri-level sync: 1080P @ 23.98/24/25/29.97/30/50/59.94/60 fps  
Tri-level sync: 1080i @ 25/29.97/30 fps  
Tri-level sync: 720P @ 50/59.94/60 fps  
Tri-level sync: 576i @ 25 fps; 480i @ 29.97 fps

**Phase Accuracy:** ±12 pixels when genlock offset is near zero

**Genlock Configuration:**  
Encode mode: Genlock Output (derived from PTP/RTCP IP timing)  
Decode mode: Genlock Input (external reference or PTP/RTCP)  
Configurable offset: ±½ vertical lines; ±½ horizontal pixels

#### TIMING & PTP

**PTP Standard:** IEEE 1588-2008 (PTPv2) per SMPTE ST 2059-2

**PTP Behavior:** Syncs to PTP clock if present on network; falls back to RTCP if PTP absent

**Redundant PTP:** Dual PTP clock domains configurable via unique domain values

#### MANAGEMENT AND CONTROL

**Web Interface:** Browser-based HTTPS WebUI (same implementation as P-AVN-4/2)

**REST API:** Primary control interface; versioned for backward compatibility

**NMOS (AMWA Specs.):** IS-04, IS-05, IS-08, IS-09, IS-11, BCP-003-01

**Visual Array:** PlexusAV Visual Array integration for centralized management and video wall control

**Security:** HTTPS, Active Directory, LDAP, 802.1X, PEP/HKEP

**LED Indicators:** Power (Red), Status (Green/Amber), UID

#### DIMENSIONS AND POWER

**Size:** 1RU Height, 1/3 RU Width

**Mounting:** Side mounting points; compatible with 1RU shelf; includes rubber feet

**Cooling:** Forced air cooling, front-to-back airflow; fan speed dynamically controlled

**Boot Time:** Full boot and stable I/O in under 60 seconds

#### ENVIRONMENTAL CONDITIONS

**Operating Temperature:** 0° to +45°C (+32° to +113°F)

**Storage Temperature:** -40° to +45°C (-40° to +113°F)

**Operating Humidity:** 10% to 90%, non-condensing

**Acoustic Noise:** < 30 dBA under full load

#### MOUNTING ACCESSORIES

P-AVN-M-1RU: 1RU Rackmount Kit Frame

#### POWER ACCESSORIES

P-AVN-PSU-TYPE-A-US: Type A Power Supply  
P-AVN-PSU-TYPE-C-EU: Type C Power Supply  
P-AVN-PSU-TYPE-G-UK: Type G Power Supply  
P-AVN-PSU-TYPE-I-AUS: Type I Power Supply

#### FUTURE FEATURES (PLANNED UPDATES)

(\*) indicates a future feature option.

#### WARRANTY

3-year warranty: The P-AVN-6-S comes standard with a 3-year limited warranty.

For additional details reach out at <https://plexusav.com/contact-us/>

