

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-6-S IPMX TRANSCEIVER?

- 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 ± 12 pixel phase accuracy.
- Full USB-C KVM support
- Professional Audio: AES67 (as defined in VSF TR-10-3) 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 Ω 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 ± 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

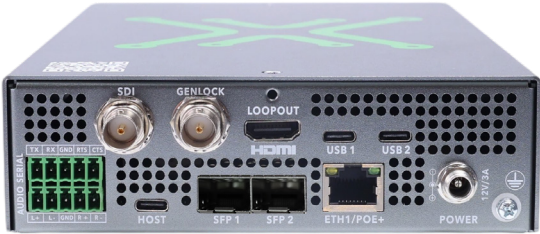
- AES67: Standards-based audio transport for professional broadcast environments (as defined in VSF TR-10-3).
- Dante Audio: Native Dante support (up to 8x8 channels).
- Extended Codec Support: PCM, Dolby Digital/Plus/TrueHD/Atmos, DTS 5.1/HD/X, 16-bit and 24-bit depth.

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



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



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
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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 (as defined in VSF TR-10-3) Up to 8x8 channels
Dante:	
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) Primary control interface; versioned for backward compatibility
REST API:	
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
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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/>

