



Multi-channel codecs

For Audio & MPX over IP



POWERFUL PERFORMANCE

- Supports up to 16 channels of Audio in 1RU and even more IP streams with Multicast or Multiple Unicast
- Outstanding audio quality with low delay, cascade-resilient Enhanced apt-X
- Many other standards and optional coding options available
- Robust DSP-based platform for mission-critical operation
- Redundant Power Supplies as standard, no single point of failure
- Hot-swappable cards enable uninterrupted audio



POWERFUL CONTROL

- User-configurable suite of audio, link, sync and PSU alarms
- Supports the majority of protocols in compliance with Tech 3326 standard for IP compatibility
- Support for SNMP
- Support VLANs and virtual IP interfaces for flexible network integration
- Network Security features with Firewall capability



POWERFUL SAVINGS

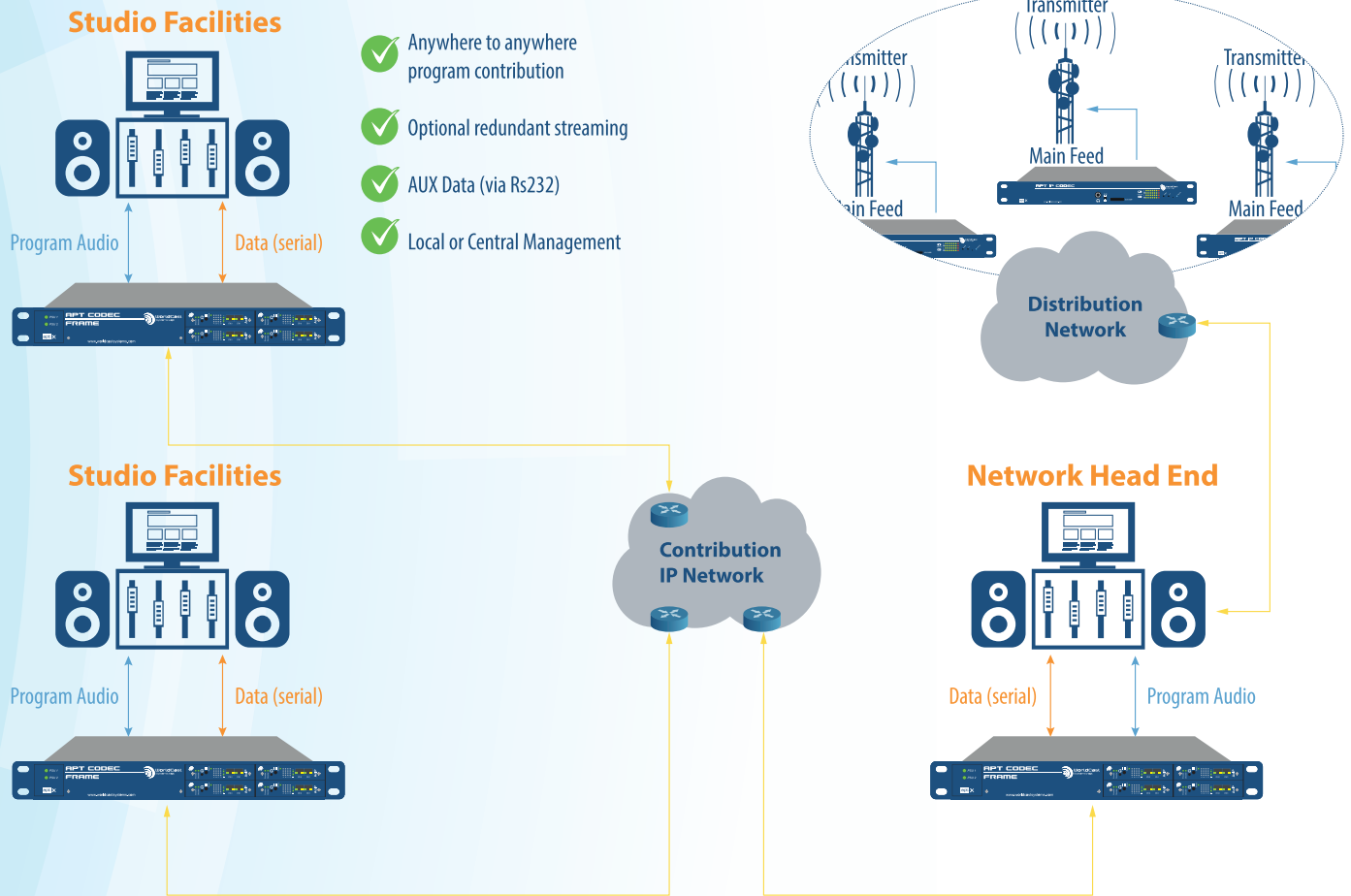
- Flexible & modular system that can scale according to your requirements
- Supports up to 4 AolP modules, each equivalent to a stand-alone stereo duplex codec in a 1U rack space
- SureStream Technology* for ultra-reliable delivery over affordable public IP connections
- Seamless Migration from T1/E1 to IP networks with minimal investment



Watch our SURESTREAM video

Applications

Multi-Channel Contribution & Distribution



- ✓ Anywhere to anywhere program contribution
- ✓ Optional redundant streaming
- ✓ AUX Data (via Rs232)
- ✓ Local or Central Management

SURESTREAM

Broadcast Audio over the Public Internet

SureStream technology is a revolutionary innovation from APT that enables broadcasters to use inexpensive IP links and still maintain professional broadcast-grade audio quality and reliability.

It delivers the audio quality and reliability you expect from a T1/E1 link at a fraction of the associated cost. SureStream also offers the added benefit of «Always-On Redundancy». With SureStream technology, you can save thousands on your audio transport bills and still offer your listeners the highest quality sound.



SureStream Awards

Key Features

FEATURES

- Transports up to two stereo audio channels per module
- Deliver up to 24 IP audio streams per module
- 192kHz Sampling supports Digital MPX over AES and fully digital transfer*
- Simplex and duplex operational modes
- Point-to-Point and Point-to-Multipoint operation
- Four Independent Clock Domains per module
- Supports Dynamic DNS for global accessibility by hostname rather than IP address
- Supports UPnP IGD protocol for configuration of UPnP enabled gateways (routers)
- Forwarding of audio or non-audio (such as PAD or HD Exporter data) UDP Streams
- Supports "Diffserv" Quality of Service (QoS) on variable DSCP values
- Support of VLANs and virtual IP interfaces enables multi-network integration for streaming and management
- Performance monitoring on each individual IP stream
- User selectable packet size for each stereo audio channel
- Configurable delay-jitter buffer for each receive IP stream (1 ms to 5000 ms)
- Headphone socket for audio monitoring
- Supports APT's award winning SureStream*
- Technology for High Quality Audio over Open Internet Links
- Reliable DSP-based architecture

Audio Over IP Codec Module



The APT AoIP Codec Module offers audio encoding/decoding, IP transport, management and auxiliary data on a single, plug-in module. This enhances the Audio over IP performance of the APT Multi-Channel Codec System as well as increasing its scalability and flexibility.

Fully compatible with the many hundreds of existing units already deployed worldwide, each AoIP card can deliver two independent stereo audio channels on multiple IP streams using multiple unicast or multicast.

The APT AoIP codec module offers the entire range of audio formats and modes meeting the audio industry's requirements: simplex, duplex, AES/EBU, AES/EBU with analog backup, analog with HI/LO or 600Ω impedance.

The module offers the same broadcast-grade audio for which the Multi-Channel Frame is renowned with support for a wealth of standards such as: Linear PCM 16/24Bit, Enhanced apt-X® 16/24Bit, MPEG1/2 LII, MPEG2 HE-AAC & HE-AACv2, MPEG4 AAC LC/LD/ELD, HE-AACv1/v2 (all available on AoIP).



The APT AoIP Codec Module is also able to support 88kHz of audio bandwidth and scale the sample rate to 192kHz, enabling a digital MPX signal to be sent on an AES stream. The output of the audio codec can therefore be transferred directly to the modulator of the exciter. This 100% digital path eliminates D/A and A/D conversions which may cause degradation of signal quality and could introduce distortion.



Technical Features

Technical specification

| Interfaces | |
|-----------------------------|--|
| Ethernet | Dual physical Ethernet ports, RJ45 for management and streaming |
| Virtual Network | Virtual Interfaces and VLAN tagging |
| Analog I/O | Electronically balanced, capacitive isolated on 37 pin D-Type connector1) Imp. Hi/Lo and 600 Ω |
| Digital Audio I/O | AES-3, 24 Bit, transformer balanced, on 37 pin D-Type connector1) Imp. 110 Ω |
| Digital Ref Input | AES, transformer balanced, on 37 pin D-Type connector1), Imp. 110 Ω |
| Serial Aux Data and GPIO | 15 pin HD-Type, 2x serial on RS232 level, 4x opto-coupled inputs and relay contacts |
| Management | Web GUI, APT NMS, SNMP, XML API (available with a later release) |
| Audio | |
| Asymmetric Audio | Independent audio modes for sent and receive, independent clock domains |
| Audio Modes | Simplex: 2x stereo Input or 2x stereo output Duplex: 1x stereo Input and Output |
| Digital Operation | Output FS, 32 kHz, 44.1 kHz, 48 kHz |
| Audio Bandwidth | 10Hz to 20kHz mono & stereo 88kHz for digital MPX over AES* |
| Standard Coding Algorithms | Enhanced apt-X 16 & 24 Bit, Linear PCM 16 & 24 Bit MPEG 1/2 Layer II, MPEG4: AAC-LC/LD/ELD, MPEG2/4: HE-AAC v1/v2 |
| Coding Delay | min. 2ms on Eapt-X and higher depending on chosen algorithm |
| Dynamic Range | 16 Bit >85dB, 24 Bit >110dB |
| Phase Response Linear | DC to Fs/2 |
| Pass Band Ripple | < 0.2dB |
| Network and OIP | |
| IP Protocols Supported | RTP/UDP/IP, RTCP, DNS, Dynamic DNS, DHCP, ICMP, IGMP, VLAN, UPnP (IGD), NTP, SNMP, SMTP, HTTP (management) |
| IP Statistics | Complete IP Statistics for each stream |
| Casting Modes | Unicast, multiple unicast, multicast, multi-multicast |
| De-Jitter Buffer | Buffer size per stream 5 - 5,000ms adjustable, automatic packets re-sequencer |
| RTP/UDP Streaming and Modes | Multiple Tx-Streams, 2x Rx Streams, UDP stream forwarding, Auto-Detection of received Stream, Auto-Reply to sender |
| Quality of Service | DiffServ, with separate DSCP values per stream, SureStream Technology and Error Concealment |
| Backup Features | SD Card for audio file storage |
| Network Security | Service Filter and Firewall Features |

Technical specification are subject to change without prior notice – 06/2017

| Data | |
|------------------------------|---|
| Serial Data Rates (embedded) | 1200, 2400, 4800, 9600 Baud (2 channels per AoIP module) |
| Serial Data Rates via IP | 1200 - 115,200 Baud (2 channels per AoIP module) |
| AUX Data via UDP | UDP forwarding PAD or private Data |
| GPIO | 4 switch inputs, 4 relays; GPI transmitted as separate UDP stream or embedded in Eapt-X |

Physical specification

| | |
|---|--|
| 19" rack mount 1U Dimensions (H/W/L) | 44mm x 482mm x 370mm 1.75" x 19" x 14.5" |
| Weight | 5Kg / 11lbs |
| Dual Power Supply | 90-250 VAC / 47-60 Hz or 36-72VDC AC/AC, AC/DC, DC/DC (order options) |
| Power Consumption | <60W |
| Guaranteed Working Temperatures | 0°C - +45°C |
| Humidity | Up to 95% relative humidity (non-condensing) |

1) with XLR breakout cable
* Cost option

Order information

| AoIP Codec Module (4HP) | |
|-------------------------|--|
| REF | DESCRIPTION |
| STP00034 | 4HP AoIP Module for APT Codec Frame 1U with XLR-Breakout Cable |
| SPP00049 | AUX/GPIO Breakout Cable for AoIP Module |
| Software Options | |
| CD00126 | SureStream option for AoIP Module – 4HP |
| LC00074 | Digital MPX over IP option for APT Codecs |
| Codec Frame | |
| TFP0109-A0 | APT Codec Frame with AC/AC PSU |
| TFP0109-A1 | APT Codec Frame with DC/DC PSU |
| TFP0109-A2 | APT Codec Frame with AC/DC PSU |

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See more about
APT CODEC FRAME