



APT IP Codec

Geared Up For Next-Gen Broadcasting

The APT IP Codec is a cutting-edge, professional IP stereo codec geared up with unique, market-leading technology to provide next generation broadcast performance. Innovative and feature-packed, the APT IP Codec elevates the quality of reliable, cost-effective, and accurate temporal IP audio and MPX transmission to a level never before achieved.

The proven SureStream redundancy and distributed intelligence of ScriptEasy is extended by the best compression format APTmpX for MPX signals and the highly precise synchronization of IP streams with APT SynchroStream.

The APT IP CODEC is perfectly equipped for individual FM feed as well as multi- and single-frequency broadcasting. It is suitable for mission critical applications and provides extensive control and monitoring functions to manage your audio, data and network conditions, as well as other equipment located at the transmitter site.

With the APT IP Codec, you know you will enjoy the rock-solid performance upon which APT has earned the trust of countless broadcasters worldwide



APT IP CODEC Benefits:



IP Transport Optimization

APT IP CODECS migrate the advantages of a synchronous connection to the IP world. With SureStream, packet losses are compensated, and latency fluctuations are eliminated by SynchroStream or the NTP-based Time Alignment. The enhanced NAT traversal mode overcomes barriers and IP packets reliably reach their specified destinations.



Pristine Audio Quality & Performance

Highest signal fidelity and lowest coding delay, which we established from the beginning with Enhanced aptX, are transferred to composite/MPX transmissions with the new APTmpX algorithm.



Maximize your Cost Savings

APT products save you money. SureStream, Enhanced aptX, and APTmpX for low bitrate composite/MPX transmissions constitute an ecosystem that provides highly available and high-quality audio distribution outside of expensive transmission paths.



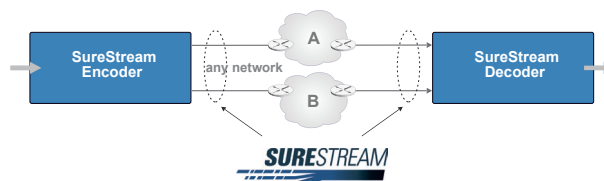
SURESTREAM

+10 Years Experience: Our team of engineers has extensive experience optimizing our algorithm for redundant streaming, making SureStream synonymous with reliable transmission in lossy IP networks.

Low Latency - Low Costs: SureStream enables the broadcaster to turn imperfect, but much cheaper services, into true broadcast-grade, low-latency IP connections.

Scalability and Flexibility: SureStream is the most flexible and scalable solution for content transmission protection, able to combine multiple paths from any combination of MPLS, Satellite, Microwave, xDSL and/or Cellular (4G/5G), creating a unified super robust connection to get your audio from point A to B.

SureStream redundant Streaming packet-by-packet protection

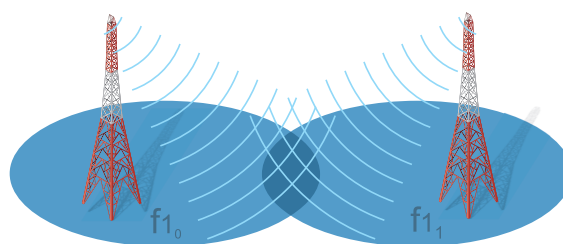


SYNCHROSTREAM

Stable Latency: The GPS-based SynchroStream eliminates variable latencies of an IP network within unprecedented narrow limits. For program transmissions, a temporal synchronized connection appears like a synchronous link.

Complete Control Over Target Latency: SynchroStream requires a single setting on the IP Encoder to define the target latency to each Decoder at a transmitter site. Only one setting is required, and all Decoders are synchronized; accurate and stable to the millisecond. Fine-tuning is done at the decoder(s) in the array.

Synchronized FM Modulation: Temporal fine-tuning is the key to optimal geographic positioning of overlapping modulations of FM carriers. SynchroStream enables modulation control with the uniquely fine granularity of <50 meters in terrain.



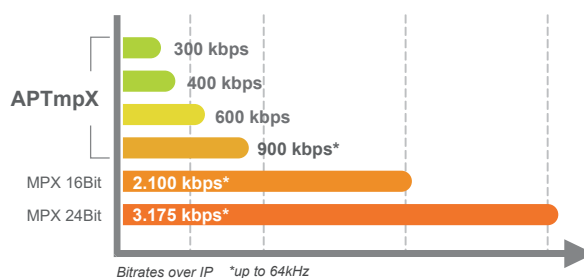
FM-SFN with SynchroStream

APTmpX

Compressed Composite/MPX: APTmpX is the industry's best MPX/composite compression algorithm, that delivers the highest sound transparency over low-bitrate IP transmissions.

Lowest Bitrate, Lowest Delay: With the lowest bandwidth requirements at 300/400/600 and 900kbps, broadcasters no longer need to compromise between low bit rate and high audio quality.

APTmpX thus eliminates the two barriers that usually discourage migration to FM MPX transmission.



SCRIPT EASY

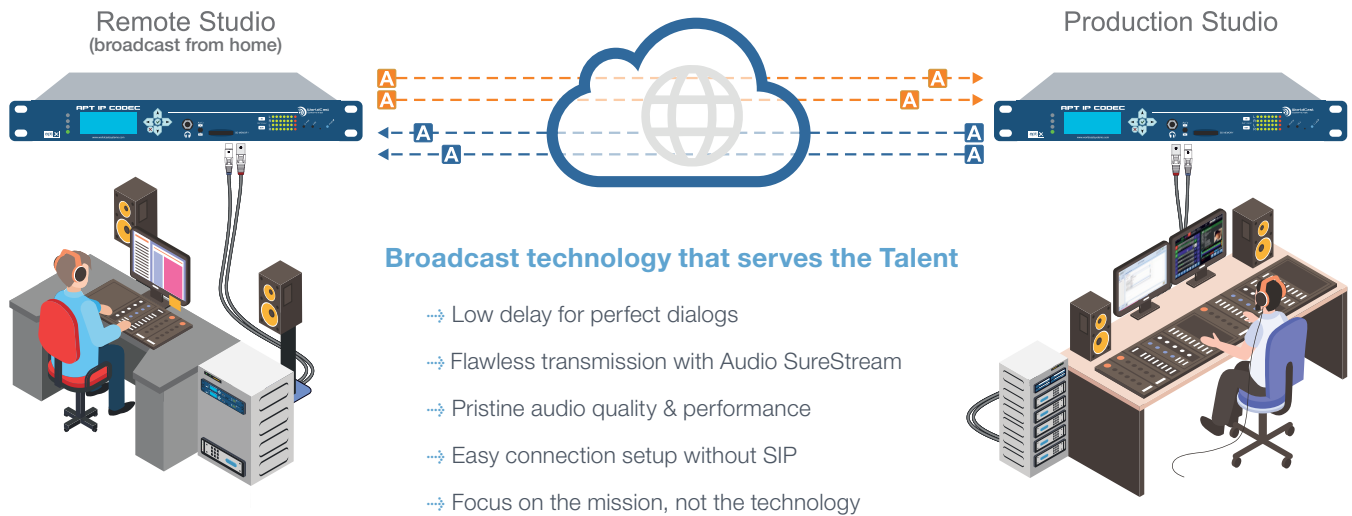
Advanced Telemetry & Facility Management

ScriptEasy is a revolutionary facility control software for connected devices, enabling the automatic correction of any critical errors that may occur. Across its intuitive web interface, ScriptEasy includes management of the GPIO, serial communications, SNMP, logic operators, live user inputs, timers, and more. This enables the "scripting" of site operations for evaluating multiple parameters and automatically engaging back up systems, while simultaneously alerting relevant technical personnel. **Integrated in the APT IP CODEC, ScriptEasy is the core technology that provides the device with its inherent "intelligence".**



Remote Production - Broadcast from everywhere

SureStream Audio Connection

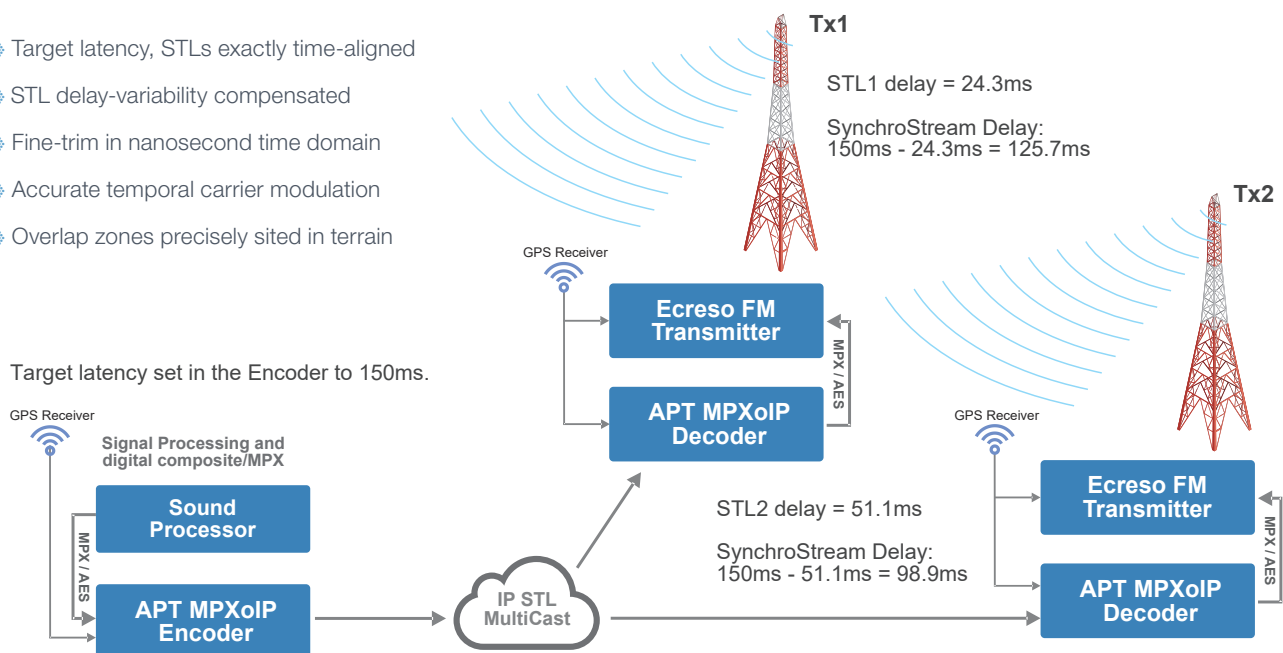


SFN Application with SynchroStream using composite/MPX over AES

with Ecreso FM transmitters of WorldCast Systems illustrating the synchronized digital broadcast chain:

- Target latency, STLs exactly time-aligned
- STL delay-variability compensated
- Fine-trim in nanosecond time domain
- Accurate temporal carrier modulation
- Overlap zones precisely sited in terrain

Target latency set in the Encoder to 150ms.



Support Level Agreement

To make sure you reap all the benefits of your broadcast investment, you can rely on the WorldCast Systems' Support Agreement program. The range of services available and with the support of our team of experts, you will benefit from maximum uptime, better performance, and overall improve your Total Cost of Ownership!

Contact your Sales Manager for more information



IP CODEC rear panel with precision clock module option

| AUDIO | |
|---|---|
| Asymmetric Audio | Independent audio modes for sent and receive, Tx and Rx clock domains and auto-detection, Reply-to-Sender, NAT traversal mode |
| Analog I/O | Electronically balanced, capacitive isolated XLR for Left/Right, Imp. Hi/Lo and 600 Ω, level adjustment in 0.1 dBu steps |
| Digital Audio I/O | AES-3, 24 Bit, transformer balanced, Imp. 110 Ω, XLR-Connectors |
| AUDIO FORMATS | |
| Multi Algorithm Suite | Eapt-X 16/24 bit, lin. PCM 16/24 bit, MPEG2/4 AAC LC/LD/ELD, HE-AACv1/2, MPEG1/2 L1/2, OPUS |
| MPX Formats (AES192) | optional, lin. MPX 16/24 bit APTmpX @ 300/400/600 & 900 kbps |
| STREAMING MODES | |
| Stream Types | Multiple stereo Audio, UDP and RTP forwarding, Reply-to-Sender, NAT traversal mode |
| SIP Modes | Peer-to-peer & SIP-Server mode, multiple SIP user accounts, sym. and asymm. SIP profiles |
| Unit Clock Modes | Asymmetric, master, slave, NTP-based & high precision GPS (optional) |
| Jitter Buffer | 2-5000ms with packet re-sequencer |
| QoS | DiffServ (RFC2474) per stream |
| Redundant Streaming | SureStream Option, multi-stream packet-by-packet redundancy |
| Backup Feature | SD Card for audio file storage |
| MANAGEMENT | |
| Front Panel Display with Key navigation | |
| Web Browser GUI | |
| APT NMS | |
| Connect Kybio (SNMP-based Manager) | |
| SNMPv2c | |
| API | |
| ScriptEasy | |
| MONITORING & ALARMS | |
| Adjustable Silence Detectors (Inputs & Outputs) | |
| Event Logs | |
| Alarm Relays | |
| SNMP Traps/Notifications | |
| PHYSICAL INTERFACES | |
| Audio on XLR | L / R analog In-Outputs digital (AES3) In-Output, ext. AES11 reference Input |
| Headphone | 1/4" (6.3mm) Jack Socket (front) |
| AUX Data | D9-way connector |
| GPIO | D15-way connectors |
| Network | 2x RJ45 |
| GPS Clock (optional) | 2x BNC (10MHz, 1 PPS) |
| AC Power | 1 + 1 (optional) IEC type |
| DC Power | 1 + 1 (optional) Power D3-way connector |

| NETWORK | |
|---|---|
| Dual IP Interfaces | 10/100BaseT/Tx, Ethernet IEEE 802.3x, IP4, Auto MDI-X |
| Port Configuration | Flexible WAN and/or LAN (Management) configuration |
| VLAN Tagging (IEEE 802.1q) | |
| Virtual IP Interfaces (IP Aliasing) | |
| Dynamic DNS | multiple clients |
| Standard Protocols | DHCP, FTP, HTTPS, ICMP, IGMP v2/3, SMTP, SNMPv2c, NTP, SMTP |
| Security | TLS 1.1 and higher, Service Filter and Firewall |
| DATA | |
| Serial Data | RS232 embedded up to 9600 Baud via UDP stream up to 115.200 Baud |
| GPIO | 4 switch Inputs and 4 relays embedded (E-aptX) and via UDP stream |
| SYNCHROSTREAM OPTION | |
| GPS-based precision timing function for perfect IP stream-synchronization in FM-SFN networks. | |
| Time Base | GPS, 10MHz & 1 PPS |
| Target Latency | Encoder setting up to 1 sec. |
| Extended target Latency | GPS + NTP up to 5 sec. |
| Timing Stability | < 0.25 μs |
| Delay Line adjustment | Increments corresponding to < 50m field distance |
| MAIN CHARACTERISTICS | |
| Dimensions (l x h x d) | 483 cm x 42 mm x 160 mm |
| 19", 1u rack mount | 19" x 1.75" x 6.3" |
| Weight | 1.5 kg / 3.35 lbs |
| Main power supply | 100-240 VAC / 50-60 Hz |
| Power consumption | < 20 VA |
| Env. Temperatures | |
| Operation | 0 °C - +50 °C |
| Storage | -30 °C - +80 °C |
| Humidity | 95 % (non-condensing) |

Order information

| REF | DESCRIPTION |
|-------------------|--|
| TF01013 | APT IP Codec with AC PSU |
| TF01013-DC | APT IP Codec with DC PSU |
| CD00123 | SureStream Technology license (secure redundant streaming) |
| SP02701 | SynchroStream Kit (precision GPS-based synchronicity) |
| LC00074 | Digital MPX/composite license for linear MPX and APTmpX |

This document is not contractual. All specifications are subject to change without notice.

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