WorldCast Systems
apt > acreso > audemat

APT

MULTI-CHANNEL CODEC

Multi-Channel Codecs

for E1/T1

POWERFUL PERFORMANCE

- Multi-Channel Codec supporting up to 3 audio cards delivering simplex/duplex and analog or digital audio
- 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

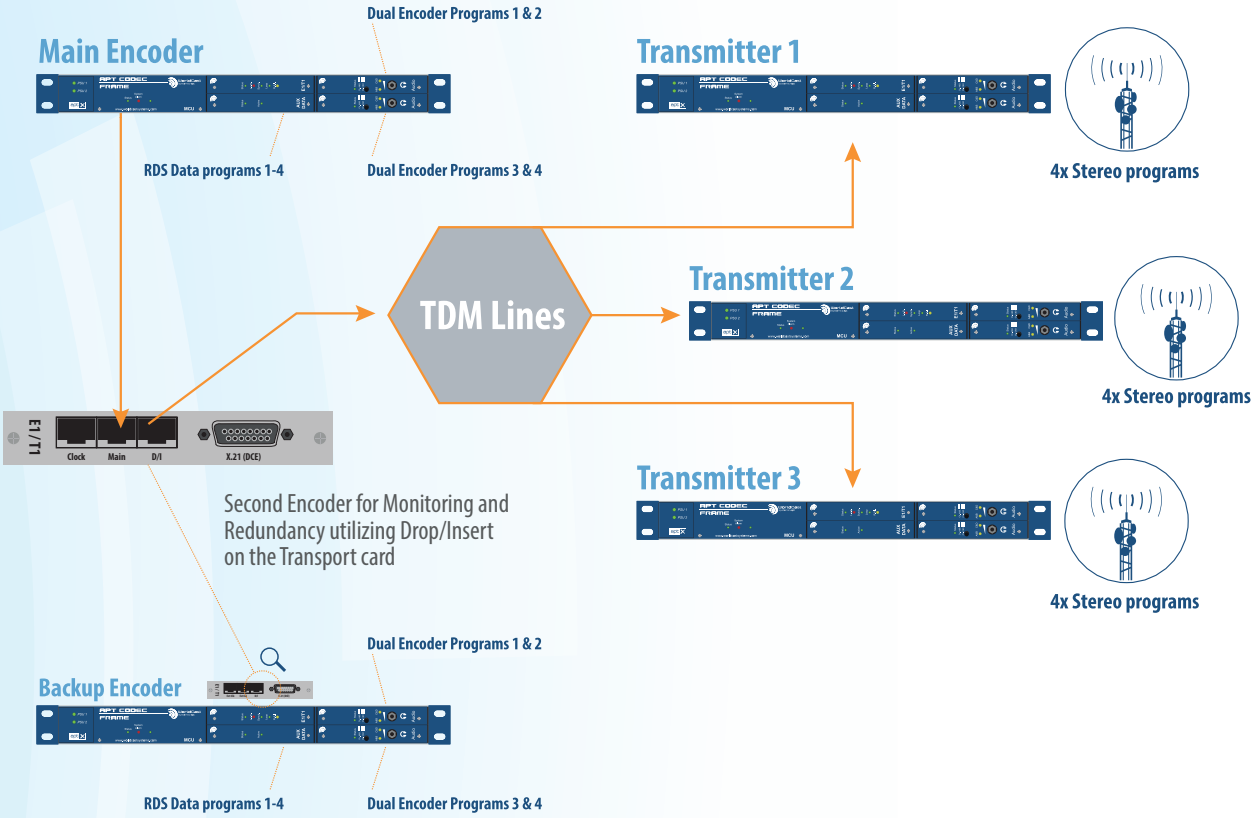
- User-configurable suite of audio, link, sync and PSU alarms
- Single network connection for central management of the full frame
- WorldCast Systems network management (NMS) allows control of multiple frames simultaneously
- Support for SNMP

POWERFUL SAVINGS

- Exceptional channel density in space-saving 1RU format
- Flexible & modular system that can scale according to your requirements
- Dual T1/E1 line connection on a single transport module allows drop/insert applications

Applications

Typical Program Distribution Network with Redundant Encoder



With a modular, single-platform approach, multiple layers of redundancy and exceptional scalability and flexibility, the Multi-Channel Codec is the perfect solution for STL, TSL, Remote broadcast, backhaul and studio linking applications. The modular platform consists of a MCU module, E1/T1 Transport Module and up to 3 slimline audio cards.

Key Features

Modules

Master Controller Unit Module - The MCU module controls the operation of all other modules in the system, allocating them time slots on the backplane and sending configuration information.

Status Monitoring - The processor constantly polls the status of individual transport modules and makes failsafe decisions based on this status. The module also monitors the frame temperature and the power supplies of the system.

Hardware Alarms - The alarm port on the MCU module provides seven GPIO relay contact closures in order to indicate critical status and alarm conditions.

Hot-Swappable - Once a Multi-Channel Frame is configured, it is able to continue to operate in the event of an MCU card failure as each card will hold its local settings. The MCU can then be "hot swapped" and will recover the current system settings from the individual modules.

Configuration Pre-sets - The MCU can store pre-defined configurations as pre-sets. A pre-set can also be used by the alarm system and for backup scenarios. Also, a pre-set can be loaded manually from the NMS GUI or external switch inputs.

E1/T1 Transport Module - The T1/E1 module is one of the most common choices for audio transport due to the reliability and widespread availability of T1 and E1 circuits. Key advantages include:

1. **Line Redundancy** - Each module comprises two T1/E1 framer devices and two line interfaces enabling line redundancy.
2. **Drop & Insert** - TThe T1/E1 module provides a failsafe circuit that, in the event of totalfailure of the module, connects the upstream T1/E1 circuit to the downstream T1/E1 circuit, thereby preserving the integrity of the data path to any other devices on the network ring.
3. **Contribution Data & Clocking** - Any data received by the X.21 port is then placed onto the T1/E1 transport link. In combination with the external clock input, this module provides versatile system timing options to connect to almost any network.

Universal Audio Module - The slimline universal audio module for the APT Multi-Channel E1/T1 Codec offers a 37-way D Type connection. Four physical slots on the 1U chassis allow the population of up to three payload modules (Audio or Aux) and one T1/E1 transport card. This results in 12 simplex and 6 duplex channels. Each module offers four audio channels which can be either four encode, four decode or two encode and two decode.
Offering a high level of flexibility and channel density, the universal audio card can provide either dual stereo or quad mono channels in simplex mode. Individual channels can be enabled and disabled or routed to different destinations. For example, on a T1/E1 link, stereo A can go to the main T1/E1 link and stereo B on the secondary, the drop and insert circuit.

The E1 module is available with both RJ45 and BNC connectors.

Technical Features

Technical specification

Universal Audio Module	
Audio Inputs / Outputs	Analog and AES/EBU on 37 pin D-Type connector, delivered with XLR breakout cable
Audio Modes	Simplex: 2x stereo Input or 2x stereo output Duplex: 1x stereo Input and Output
Impedance	Digital, 110/110 Ω transformer balanced Analog, Hi/Lo or 600 Ω (order option)
Digital Ref Input	AES, transformer balanced, Imp. 110 Ω
Digital Operation	Output FS, 32 kHz, 44.1 kHz, 48 kHz
Audio Bandwidth	10Hz to 20kHz mono & stereo
Standard Coding Algorithms	Enhanced apt-X 16 & 24 Bit, Linear PCM 16, 20 & 24 Bit MPEG 1/2 Layer II* ITU G.57, J41*
Coding Delay	min. 2ms on Eapt-X and higher depending on chosen algorithm
Dynamic Range	16 Bit >85dB, 24 Bit >110dB

E1/T1 Transport	
T1/E1 Line Ports	2x RJ45, transformer balanced 1x RJ45 ext. BITS clock
T1/E1 Modes	Drop/Insert or Dual Line (one Clock domain)
Data Port	X.21 (DCE) Data rates 64 kbps to 1984 kbps
Payload Rate	E1: 31TS (1.984kbps) T1: 24TS (1.536kbps)
Clock Source	Internal, BITS, Loop-Timing
Framing	E1: ITU G.703/704 (CRC-4 MF, DF) T1: ESF and SF/D4
Aux/GPIO Data Module	
Serial Data (5 ports)	5x RS232 ≤ 9.600 Baud @ 64 kbps
GPIO	8 opto-coupler inputs 8 relay contact closures
System Controller (MCU)	
Ethernet Port	100BaseT for Management access
Alarm Relays	7 Relays for user defined alarms
Control	APT NMS, SNMP, ext. preset switches (loads up to four configuration presets)

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

*Cost option

Physical specification

19" rack mount 1U Dimensions (H/W/L)	44mm x 482mm x 370mm 1.75" x 19" x 14.5"
Payload Capacity	3x Universal Audio Module OR 2x Universal Audio Module, 1x AUX/GPIO Module
Weight	5 kg / 11 lbs
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)

Order information

System Controller (MCU)	
REF	DESCRIPTION
STP00032	MCU System controller and NMS Software for APT Codec frame 1U (E1/T1 version only)
E1/T1 Transport Modules (4HP)	
STP00037-A0	E1 multiplexer RJ45, 2 Line Ports and ext. Clock (120 Ohm), X.21Data Interface
STP00037-A2	E1 multiplexer BNC, 2 Line Ports and ext. Clock (75 Ohm), NO Data Interface
STP00052-A0	T1 multiplexer RJ45, 2 Line Ports and ext. Clock (120 Ohm), X.21 Data Interface
STP00052-A2	T1 multiplexer BNC, 2 Line Port, ext. Clock (75 Ohm), NO Data Interface
Universal Audio Modules (4HP)	
STP00040-A0	4Ch. Audio Card (front/rear) analog/digital, analog Imp. HI/LO (with breakout cable)
STP00040-A1	4Ch. Audio Card (front/rear), analog/digital, analog Imp. 600 Ω (with breakout cable)
Algorithm Options	
CD00126	MPEG Layer II option (per audio card)
CD00125	ITU J.41/J.57 option (per audio card)
CD00127	ITU J.41/J.57 and MPEG Layer II option (per audio card)
Aux//GPIO Data Module (4HP)	
STP00043	Auxiliary Data Card
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

Head Office

WorldCast Systems S.A.S
20 avenue Neil Armstrong
33700 Mérignac (Bordeaux Métropole) FRANCE
+33 (0)5 57 928 928
contact@worldcastsystems.com

WorldCast Systems Inc

19595 NE 10th Avenue Suite A
Miami, FL 33179
USA
+1 305 249 3110
ussales@worldcastsystems.com

See more about APT Multi-Channel E1/T1