Q9X-T FM/DAB+ Receiver/Transcoder

Applications

- Transcoding for Cable Networks
- Monitoring Receiver

Features

- Up to 12 independent FM/DAB+ Receivers in 1RU
- Optional: 4 Analog or 12 AES3 Audio Outputs
- Optional: RAVENNA/AES67/ Livewire+/ST2110-30/-31 outputs
- Quad 10/100/1000 Ethernet interfaces with dynamic role assignment
- Highly energy efficient
- Remote control using REST API, SNMPv2c, EmBER+, NMOS IS-04/IS-05
- State-of-the-art security

The most flexible terrestrial receiver/transcoder.

The Q9X-T is the successor to the Q565/Q567 FM/DAB+ DVB Transcoders as well as to the Q877 DAB+ Receiver, combining many features into a single, flexible device.

Featuring up to 12 tuners that may each be switched between FM and DAB+ reception, a previously unparalleled density is achieved.

The received audio signals may be transcoded and output as a fully DVB-compliant MPEG-2 Transport Stream, with RDS data converted back to UECP, ensuring that the customers always get their title information.
The MPEG-2 Transport Stream can either be output over IP or via ASI.

Optionally, the device features 4 analog or 12 digital output channels for use as a FM/DAB+ receiver.

As all other devices using the Q9X platform, it offers 4 freely assignable network interfaces to adapt to every application.

The system has a flexible licensing model that allows field upgrading of channel counts and options as all devices are always delivered with a full hardware configuration.

Q9X-T FM/DAB+ Receiver/Transcoder

Specifications

FM/DAB+ Tuners

Up to 12 independent FM/DAB+ Tuners	
Input Frequency (FM)	87.5 MHz to 108 MHz
Input Frequency (DAB)	168 MHz to 240 MHz (DAB Band III)
Input Signal Level	17 dBµV to 110 dBµV
Input Connector	Female F Connector, 75 Ω Internal antenna distributor
Supported Standards (DAB)	• DAB (ETSI EN 300 401) • DAB+ (ETSI TS 102 563)

Baseband Audio Output

Digital	• 8x AES/EBU, XLR (IEC 958), shared with analog outputs 1-4 • 4x AES/EBU, on 1x Sub-D 25 (TASCAM pin assignment)
Analog	• 4x Stereo Channels, on 8x XLR, shared with digital outputs 1-8
Performance (Analog)	• 24-bit high quality D/A converters • THD+N: < 0.003 % @ 1 kHz • Crosstalk attenuation: > 100 dB @ 1 kHz • S/N ratio (weighted): > 80 dB
Sample Rates (Digital/Analog)	32, 48, 96, 192 kHz

Audio-over-IP Output

Standards	RAVENNA, AES67, SMPTE ST2110-30/-31, Axia Livewire+™, Dante® in AES67 mode
Supported Formats	L24, L16, AM824
Number of Channels	Up to 64 per Stream
Sample Rates	32, 48, 96, 192 kHz
Discovery	mDNS, SAP, Manual Configuration
Channel assignment by internal crossbar	
Seamless Protection Switching (according to SMPTE ST2022-7)	

Ancillary Data Output

Hardware	• 8x RS232 Outputs, on 1x SUB-D 26 ○ Breakout cable (SUB-D 26 -> 8x SUB-D 9)
UDP	• 16x UECP-over-UDP outputs (according to UECP v7.1)
Other formats on request	

Encoding Algorithms

- MPEG-1/2 Layer 2 (according to ISO 11172-3, ISO 13818-3)
- MPEG-1/2 Layer 3 (according to ISO 11172-3, ISO 13818-3)
- AAC-LC, HE-AACv1, HE-AACv2, AAC-LD, AAC-ELD (ADTS and LOAS framing, according to ISO 13818-7, ISO 14496-3)
- xHE-AAC® (according to ISO 23003-3, ISO 14496-3/Amd 3)
- AC-3/E-AC-3 (according to ATSC A/52)
- Opus
- G.711 µ-Law/A-Law, G.722
- Others on request

Audio Channel Configurations (dependant on algorithm)	• Stereo, Joint Stereo • Mono (Extract/Mixdown) • 5.0/5.1 • 7.0/7.1
Embedded Metadata	• RDS/UECP for DVB • ID3 Tags

Network Interfaces

4x Ethernet interfaces (IEEE 802.3, RJ-45, 10/100/1000 Mbps)

Isolation of all networks by integrated firewall

Roles can be freely assigned to any of the interfaces (Management, Data, etc.)

System Configuration, Control and Monitoring

HTML5 Web UI

Remote Control	• REST API • EmBER+ • NMOS IS-04/IS-05 • SNMPv2c
User Management	• Fine-grained permission control • LDAP(S) authentication

Power Requirements

Connectors	• 1x IEC60320 C14 ○ 1x IEC60320 C14 (for 2nd power supply 100-230 V AC) ○ 1x Neutrik powerCON (for 2nd power supply -48 V DC)
Power Supply	• 100 to 240 V AC +/- 10%, 50 to 60 Hz ○ -48 V DC ○ Redundant Power Supply
Power Consumption	< 20 W

Specifications (continued)

Physical Parameters	
Chassis	19”, 1 RU
Size (W/D/H)	483 mm / 365 mm / 44 mm
Weight	6 kg

Environmental Conditions	
Operating Temperature	0 to 45 °C
Storage Temperature	-20 to 70 °C
Humidity	< 95 % (non-condensing)

Legend: ● Default ○ Optional

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