Applications

Broadcasting

- ► Encoding for DVB (DVB-S2, DVB-S)
- ► Encoding of internet radio streams (Icecast, HLS, DASH)
- ► Radio and TV broadcasters use Q8V to encode radio services for DVB and Internet radio streaming.

Distribution

- ► Broadcast radio network providers use Q8V to deliver radio services to FM broadcasting stations.

Studio

- ► Studio operators use Q8V for low-latency bi-directional 'studio-to-studio' connections, even with phase-synchronicity between several audio channels.
- ► RAVENNA / AES67 networks can be linked together, e.g. for remote production.

Cable Networks

- ► Cable TV and IPTV providers use Q8V as a radio transcoding system for standardization of radio services for the different transmission paths: DVB-C, FM and IPTV.
- ► Transcoding from MPEG-2 TS to MPEG-2 TS for converting audio formats, e.g. AAC to MPEG-1 L2 or vice versa.

Features

- ► Encoding
- ► Decoding
- ► Transcoding
- ► Multiplexing
- ► Web Streaming
- ► POD Casting
- ► Audio Monitoring
- ► Akamai MSL 4.x Qualified Encoder

High performance audio processing system with a special flexibility.

Q8V is an universal audio processing system for broadcast applications. It can handle a large number of audio programs, limited only by hardware or VM resources.

In a heterogeneous audio world, full of fast-moving standards, Q8V's comprehensive protocol stack and remarkable features enable processing of up to 100 audio stereo channels in a 19" RU appliance.

A modular software architecture and a fluid licensing model form the basis of three Q8V variants for use in audio contribution and audio distribution applications.

Dynamic network configuration allows to add unlimited number of VLANs and assign roles for each interface. Using the internal audio matrix, every audio stream inside the device can be routed to any other component, making the device highly flexible.

Our Q8V codec system is constantly under development for new features and improvements.

⇥ Input

Q8V enables the reception of various audio signals such as web radio streaming (Icecast, SHOUTcast, HLS), MPEG-2 TS over IP, RAVENNA / AES67, MPEG Elementary Stream, Livewire+™, Dante® in AES67 mode, audio files and metadata.

The integrated input redundancy ensures that in case of signal loss, the system automatically switches to the alternative signal. This feature increases service availability for higher customer satisfaction and lower operational overhead.

⤳ Processing

The processing section provides you with up to 100 audio encoder instances. Here, the audio signals are encoded with an extensive set of audio codecs and configuration parameters, or transcoded into the desired codec algorithms, audio levels and bit rates.

The transcoder functionality normalizes all radio programs to the requirements for the respective audio distribution network. This ensures a uniform user experience for all end devices on the network.

The encoder inserts metadata from web radio streams and external UECP data (e.g. RDS) into the audio elementary stream.

⇥ Output

The output section generates all required audio output protocols for the respective audio application.

For DVB-TS over IP applications, any number of SPTS and MPTS streams can be generated. The integrated transport stream multiplexer function generates all SI tables for DVB compliant integration. The DVB transport stream multiplexer and the embedded RDS data transmission are compatible with the common IP-to-FM modulators and DVB terminals. The supported output formats for web stream encoding are Icecast, HLS and RTMP and for Audio over IP are RAVENNA, Livewire+™, Dante® in AES67 mode.

♥ Monitoring

The audio monitoring section monitors the input signals applied to the system and displays the audio levels before the encoder and after the encoder.

Uniform loudness across all radio programs positively influences QoS from the radio consumer's point of view. Q8V provides loudness monitoring according to EBU R 128.

Some CDN streaming providers define dedicated loudness values that must be met for the delivery of web radio streams. Q8V supports this quality assurance with its monitoring functions.

⚙ System

The Q8V Virtual Appliance can be managed conveniently via the integrated web interface with all common web browsers.

The device can be monitored and managed via SNMP and REST API. Configurable alarms automatically inform your systems about errors and events.

Specifications

Input Formats

RAVENNA / AES67	► Formats: L16, L24, L32 ► Sampling rate: 32 kHz, 48 kHz ► Channels: 1 to 64
Audio over IP	► RAVENNA ► Axia® Livewire+™ ► Dante® in AES67 mode ► AES67 ► SMPTE ST 2110-30, SMPTE ST 2110-31
Internet radio stream	► Icecast, SHOUTcast ► HLS ► DASH
MPEG-2 TS	► MPTS, SPTS ► AoIP, UDP / RTP, SRT (Secure Reliable Transport), plain UDP
Elementary stream	N/ACIP, AoIP, UDP / RTP, plain UDP, RIST, SRT
File playout formats	► WAV ► MP3
UECP over UDP	

Audio Processing

High quality multi-format audio encoding	► MPEG-1 Layer II and III ► MPEG-4 AAC-LC, HE-AACv1, HE-AACv2, AAC-LD, AAC-ELD, AAC-ELDv2 (optional), AC-3 (ATSCA-S2) ► ADTS: MPEG-4 AAC-LC, HE-AACv1 and HE-AACv2 ► OPUS
Audio channel configurations	► Mono L/R, L+R mix ► Stereo, Joint Stereo ► 5.0, 5.1, 7.1
Bit rates	► All bit rates are supported according to the respective standards
Sampling rate	32 kHz, 48 kHz
Metadata	► Static and Dynamic Metadata for Web Streaming (Icecast, ID3 etc.) ► RDS/UECP for MPEG Streams

Output Formats

RAVENNA / AES67	► Formats: L16, L24, L32 ► Sampling rate: 32 kHz, 48 kHz ► Channels: 1 to 64
Audio over IP	► RAVENNA ► Axia® Livewire+™ ► Dante® in AES67 mode ► AES67 ► SMPTE ST 2110-30, SMPTE ST 2110-31
MPEG Transport Stream, fully DVB compliant	► AoIP, UDP/RTP, SRT, plain UDP ► Over ASI ► MPEG-2 Transport Stream (compliant to Pro-MPEG Code of Practice #3 release 2 / SMPTE ST 2022-2) including service information according to ETSI EN 300 468 (RTP, UDP)
Elementary stream	► AoIP, UDP/RTP, SRT, plain UDP ► Streaming of elementary streams compliant to RFC3550/3551, RFC3016, RFC3640 (RTP, UDP)
Internet radio stream	► Icecast, SHOUTcast ► HLS ► DASH ► Ybrid
RTMP	

Metadata

Ancillary data input	► Private Stream in MPEG-2 Transport Stream ► Embedded in Audio Elementary Stream ► Internet Radio Stream Icecast ► RDS/UECP embedded and private ► Others on request
Ancillary data output	► Private Stream in MPEG-2 Transport Stream ► Embedded in Audio Elementary Stream ► Internet Radio Stream Icecast, ID3, Ybrid ► RDS/UECP embedded and private ► Others on request

Network Interfaces

Dynamically assignable network interfaces (Interface count dependent on hardware / virtualization environment in use)
VLAN Management
Assignable Interface Roles
Interface bonding for fallback / redundancy

System Configuration, Control and Monitoring

Modern Web UI
REST API
SNMP
CLI (Local console and SSH)

Monitoring

Stream monitoring for incoming web streams
Silence detection
Network condition monitoring
SNMP Traps and E-Mail notifications in case of triggered Alarms
Audio Glitch Detection
EBU R128 Loudness Monitoring
ETR 290 for MPEG-2 TS

Hardware – Q8V Appliance

Power Requirements

Voltages	► 100 to 240 V +/- 10 %, 50 to 60 Hz ► -48 V DC (optional) ► Redundant Power Supply (optional)
Power Consumption	< 75 W

Physical Parameters

Chassis	19" , 1U
Size	► Width: 483 mm ► Depth: 400 mm ► Height: 44 mm
Weight	5 kg
Connectors (backside)	2x IEC-60320 C14 (PSU)
Network Interfaces (backside)	► 8x RJ-45 ► 4x RJ-45 and 4x SFP (optional)

Environmental Conditions

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

Monitoring

Network condition monitoring of System Health values (CPU Temperature, Fan speeds, etc.)

Q8V Models

Q8V - Appliance	With up to 100 stereo audio channels in 19" 1U design and redundant power supply.
Q8V - Server	For operation on COTS (bare metal computers). The number of audio stereo channels depends on the CPU performance of the COTS used.
Q8V - VM	With up to 100 stereo audio channels for virtual operation in the data center.

Scalability

Q8V adapts flexibly and easily to your individual needs.

The extremely simple license concept, starting with 1 stereo audio encoder / transcoder license up to 100 licenses per system, is understandable to everyone and continuously adaptable. It is also possible to change between the different Q8V systems in order to achieve the best result.

With the Q8V – Server you are able to use your own PC / server hardware. A bare metal computer without a hard drive is unbeatably cheap and is already available in most infrastructures.

For example, an Intel NUC i3 is powerful enough for up to 20 encoder / transcoder instances. If you want to use more instances, simply transfer the Q8V – Server to a more powerful server hardware of your choice.

If you prefer a performance-optimized system, the Q8V Appliance is undoubtedly the best choice. A high-performance multi-channel audio codec system for up to 100 encoder / transcoder licenses 'ready-to-use' is available to you without restriction and without reservation.

You get the highest flexibility with Q8V VM (Virtual Machine). In a VM environment, it makes sense to distribute the encoder / transcoder licenses over several 'small' Q8V VM instances. The system availability against failures is significantly increased by the functions of the VM environment itself, as well as by using several small Q8V instances. Each Q8V instance usually has power reserves that can be used for ad-hoc license extensions.

Support Options

We are convinced of the high quality of our products. Hence, we are granting 2 years warranty without making compromises.

For the time after that, we offer affordable subsequent contracts.

For optimal support and for software updates and upgrades we offer budget-friendly support contracts.

- 2 years warranty
- Hardware warranty extension up to 10 years

- Service Contract Basic (Updates, Email support) (mandatory)

- Service Contract Advanced (Updates, Email- and phone support, replacement devices etc.)

Legend: ➤ ● Default   ➢ ○ Optional