



## Applications

### Studio Transmitter Link

## Features

- ▶ Professional audio decoder
- ▶ Decodes up to 16 audio programs from a DVB transport stream
- ▶ Decodes elementary streams over IP
- ▶ Broadcast quality XLR-connectors
- ▶ Up to 16 RS.232 ports for RDS data (UECP)
- ▶ GPIO (4 outputs, 8 inputs)
- ▶ Programmable alarm array
- ▶ All bit rates are supported according to the respective standards
- ▶ 32 kHz, 48 kHz sampling rate
- ▶ 24 Bit D/A converter
- ▶ Remote controllable via Browser / SNMP
- ▶ Monitoring
- ▶ Axia® Livewire+™, RAVENNA / AES67, Dante®, SMPTE ST 2110-30, SMPTE ST 2110-31

### Compression algorithms for TS

- ▶ MPEG-1/2 Layer 2
- ▶ AAC
- ▶ Enhanced aptX

### Compression algorithms for ES

- ▶ Linear PCM
- ▶ MPEG-1/2 Layer 2/3
- ▶ AAC
- ▶ Enhanced aptX
- ▶ OPUS
- ▶ G.711
- ▶ G.722

## Audio Decoder for multiple audio channels with IP input

The Q9X-D IP Audio Decoder enables you to decode up to 16 stereo channels digital AES/EBU or up to 8 analog stereo channels (analog and digital AES/EBU). It is possible to decode elementary streams as well as DVB compliant transport streams. Input signals coming via IP can be handled and decoded.

### Audio Compression

The Q9X-D supports a wide range of industry standard audio codecs such as MPEG-1 Layer 2 and various AAC versions.

## 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.

### Ordering Options

The basic unit is licensed for one audio decoder channel, MPEG-1 Layer 2 and the functions RDS ancillary data (DVB standard ETSI TS 101 154) and GPIO. Further channels and options are possible.

- 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



## Specifications

Audio Output	
Digital	Up to 8 AES/EBU, electrical, XLR (IEC958)
Analog	<ul style="list-style-type: none"> <li>▶ Up to 4 XLR, electronically balanced, 0 to +18 dBu, adjustable in 0.5 dB steps</li> <li>▶ Audio frequency range 20 Hz to 20 kHz (<math>\pm 0.3</math> dB)</li> <li>▶ Output Impedance: <math>\leq 50 \Omega</math></li> <li>▶ THD+N (1 kHz at max. level): <math>&lt; 0.01</math> % at 1 kHz</li> <li>▶ Crosstalk attenuation at 1 kHz: <math>&gt; 100</math> dB</li> <li>▶ Dynamic range: <math>&gt; 80</math> dB</li> <li>▶ S/N ratio (weighted): <math>&gt; 80</math> dB</li> </ul>
Audio channel configurations	<ul style="list-style-type: none"> <li>▶ Mono L/R, L+R mix</li> <li>▶ Dual Mono</li> <li>▶ Stereo, Joint Stereo</li> </ul>
RAVENNA / AES67	Output of up to 16 stereo channels <ul style="list-style-type: none"> <li>▶ Formats: L16, L24, L32</li> <li>▶ Sampling rate: 32 kHz, 48 kHz</li> <li>▶ SMPTE ST 2110-30 and SMPTE ST 2110-31 compatible</li> </ul>
Dante®	
Axia® Livewire+™	
Audio Compression	
Algorithms	<ul style="list-style-type: none"> <li>▶ MPEG-1 Layer 2/3 (ISO/IEC 1172-3, 13818-3)</li> <li>▶ MPEG-2 AAC-LC (ISO/IEC 13818-7)</li> <li>▶ MPEG-4 AAC-LC, HE-AAC V1/V2, AAC-LD, AAC-ELD (ISO/IEC 14496-3)</li> <li>▶ Enhanced aptX</li> <li>▶ Linear PCM</li> <li>▶ OPUS</li> <li>▶ G.711, G.722</li> </ul>
Bit rates	▶ All bit rates are supported according to the standards of the respective algorithms (32 – 384 kbps)
Sampling rate	32 kHz, 48 kHz
Ancillary data	<ul style="list-style-type: none"> <li>▶ RS.232 interface</li> <li>▶ Transport of ancillary data via UECP within the MPEG-2 transport stream</li> <li>▶ Breakout cable (optional, 4 or 8 connectors, conversion from Sub D25 to Sub D9)</li> </ul>

Transport Protocols	
Over IP	<ul style="list-style-type: none"> <li>▶ Input of DVB MPEG-2 transport streams including service information according to ETSI EN 300 468, compliant to „Pro-MPEG Code of Practice #3 release 2“</li> <li>▶ FEC according to SMPTE ST 2022-1 (optional)</li> <li>▶ Input of elementary streams</li> <li>▶ Seamless Protection Switching according to SMPTE ST 2022-7 (optional)</li> <li>▶ SRT</li> </ul>

Network Interfaces	
3 separate Ethernet interfaces (IEEE 802.3, RJ45, 100/1000 MBit/s)	
<ul style="list-style-type: none"> <li>▶ 2x Data (elementary / transport streams via IP)</li> <li>▶ 1x Control (Web interface, SNMP and Ancillary Data)</li> </ul>	

System Configuration, Control and Monitoring	
Via Ethernet by accessing the on-system HTTP web server with any Internet browser	
REST API	
SNMP traps and email notifications in case of triggered alarms	
Via the front panel keyboard and display	
Network condition monitoring	
Silence detection (optional)	

Power Requirements	
Voltages	<ul style="list-style-type: none"> <li>▶ 100 to 240 V +/- 10 %, 50 to 60 Hz</li> <li>▶ -48 V DC (optional)</li> <li>▶ Redundant power supply (optional)</li> </ul>
Power consumption	$< 20$ W

Physical Parameters	
Chassis	19" rack mount cabinet, 1U
Size	<ul style="list-style-type: none"> <li>▶ Width: 483 mm</li> <li>▶ Depth: 360 mm</li> <li>▶ Height: 44 mm</li> </ul>
Weight	4.5 kg

Environmental Conditions	
Operating temperature	$-10$ °C to $45$ °C
Storage temperature	$-20$ °C to $70$ °C
Humidity	$< 95$ % (non-condensing)