

Applications

Studio Transmitter Link

Monitoring

Features

- ▶ Professional audio satellite receiver
- ▶ DVB-S/S2 demodulation with optional Very Low Symbol Rate support
- ▶ DVB-S2X demodulation
- ▶ Decodes up to 16 audio programs from a DVB transport stream
- ▶ Broadcast quality XLR-connectors
- ▶ Up to 16 RS.232 ports for RDS data (UECP)
- ▶ GPIO (4 outputs, 8 inputs)
- ▶ Programmable alarm array
- ▶ Wide support of operating modes (stereo, joint stereo, dual mono, etc.)
- ▶ 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™, Dante®, RAVENNA / AES67, SMPTE ST 2110-30, SMPTE ST 2110-31

Compression algorithms

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

Professional Satellite Receiver for Radio Distribution

The Q9X-R Audio Satellite Receiver is a highly reliable professional satellite receiver designed specifically for the distribution of audio programs received via satellite to broadcast networks. The received programs can be distributed either as TSoIP or via the DANTE® / RAVENNA network. The Q9X-R is based on the latest DVB satellite modulation and MPEG audio compression standards. The Q9X-R supports ultra-high efficiency, standards-based DVB-S2 as well as DVB-S2X satellite demodulation.

MPEG Audio Compression

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

Combining DVB-S/S2 and S2X satellite demodulation with MPEG-4 AAC audio decoding helps the broadcaster to reduce annual satellite bandwidth costs and increase audio quality.

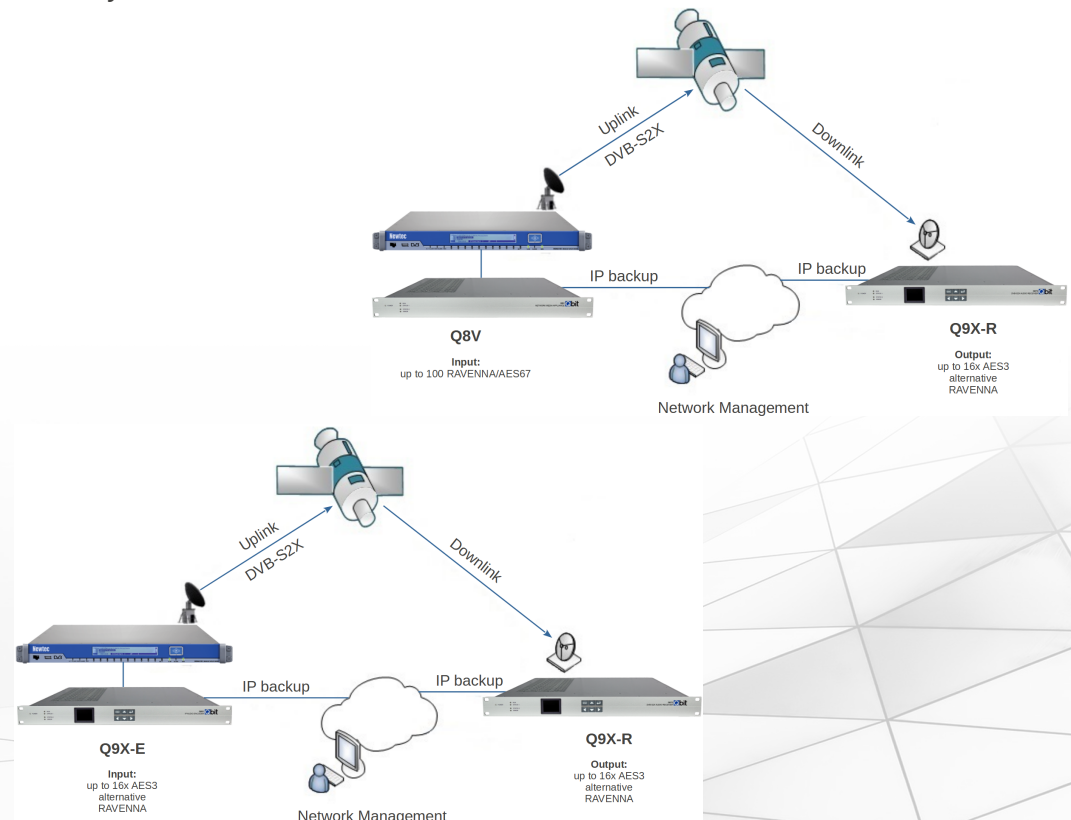
DVB-S/S2/S2X Demodulation

Qbit supports both DVB-S/S2 and DVB-S2X satellite demodulation. Both MCPC and SCPC delivery modes are supported, down to rates as low as 100 kSps up to 45 MSps.

Monitoring

The Q9X-R monitors the reception quality, e.g. signal power, carrier-to-noise ratio, signal-to-noise ratio (E_b/N_0) and bit error rate.

Possible system scenarios



Specifications

Satellite Input

DVB-S/S2 Tuner (DVB-S2X optional)

RF frequency range	950 to 2150 MHz (C and Ku-Band)
Power range	-30 to -65 dBm per carrier
Image rejection	> 30 dB
IF filter bandwidth	Automatic (depending on the symbol rate)
Symbol rate	<ul style="list-style-type: none"> ▶ 0.35 to 45 MSps ▶ 0.1 to 45 MSps (very low symbol rate option)
Demodulation	QPSK, 8PSK, 16APSK, 32APSK, 64APSK (DVB-S2X only)
Input connector	F socket
Loop-through connector	F socket
Impedance	75 Ω
LNB supply voltage	0 V, 13 V, 18 V (400 mA)
LNB control	22 kHz / 18 V, DiSEqC 2.x, Toneburst
FEC DVB-S	1/2, 2/3, 3/4, 5/6, 7/8
FEC DVB-S2	1/2, 1/3, 2/3, 2/5, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10

Transport Protocols

Over IP	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“
RTP over UDP	Plain UDP is possible
FEC	Compliant to Pro-MPEG Code of Practice #3 release 2 / SMPTE ST 2022-1
MPEG transport stream, fully DVB compliant	<ul style="list-style-type: none"> ▶ 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)

Audio Output

Digital	Up to 8 AES/EBU, electrical, XLR (IEC958)
Analog	<ul style="list-style-type: none"> ▶ Up to 4 XLR, electronically balanced, 0 to +18 dBu, adjustable in 0.5 dB steps ▶ Audio frequency range 20 Hz to 20 kHz (± 0.3 dB) ▶ Output Impedance: ≤ 50 Ω ▶ THD+N (1 kHz at max. level): < 0.01 % at 1 kHz ▶ Crosstalk attenuation at 1 kHz: > 100 dB ▶ Dynamic range: > 80 dB ▶ S/N ratio (weighted): > 80 dB
Audio channel configurations	<ul style="list-style-type: none"> ▶ Mono L/R, L+R mix ▶ Dual Mono ▶ Stereo, Joint Stereo
RAVENNA / AES67	Output of up to 16 stereo channels <ul style="list-style-type: none"> ▶ Formats: L16, L24, L32 ▶ Sampling rate: 32 kHz, 48 kHz ▶ SMPTE ST 2110-30 and SMPTE ST 2110-31 compatible
Dante®	
Axia® Livewire+™	

Audio Compression

Algorithms	<ul style="list-style-type: none"> ▶ MPEG-1 Layer 2/3 (ISO/IEC 1172-3, 13818-3) ▶ MPEG-2 AAC-LC (ISO/IEC 13818-7) ▶ MPEG-4 AAC-LC, HE-AAC V1/V2, AAC-LD, AAC-ELD (ISO/IEC 14496-3) ▶ Enhanced aptX ▶ Linear PCM ▶ OPUS ▶ G.711, G.722
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"> ▶ RS.232 interface ▶ Transport of ancillary data via UECP within the MPEG-2 transport stream ▶ Breakout cable (optional, 4 or 8 connectors, conversion from Sub D25 to Sub D9)

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)

Network Interfaces

3 separate Ethernet interfaces (IEEE 802.3, RJ45, 100/1000 Mbit/s)

- ▶ 2x Data (transport streams via IP)
- ▶ 1x Control (Web interface, SNMP, and Ancillary Data)

Power Requirements

Voltages

- ▶ 100 to 240 V +/- 10 %, 50 to 60 Hz
- ▶ -48 V DC (optional)
- ▶ Redundant power supply (optional)

Power consumption < 20 W

Physical Parameters

Chassis 19" rack mount cabinet, 1U

Size

- ▶ Width: 483 mm
- ▶ Depth: 360 mm
- ▶ Height: 44 mm

Weight 4.5 kg

Environmental Conditions

Operating temperature -10 °C to 45 °C

Storage temperature -20 °C to 70 °C

Humidity < 95 % (non-condensing)

Ordering Options



Q9X-IRD Model	Description
Base	<ul style="list-style-type: none"> ▶ Licensed for one audio decoding channel. Further channels are available via licensing. ▶ MPEG Layer 2 supported ▶ RDS ancillary data (DVB standard TR 101 154) ▶ GPIO (8 inputs, 4 outputs)
Hardware Options	Description
TBD	
Software Options	Description
TBD	

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