

## 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

## Compression algorithms

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

## Professional Satellite Receiver for Radio Distribution

The Q9X-IRD 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-IRD is based on the latest DVB satellite modulation and MPEG audio compression standards. The Q9X-IRD 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-IRD 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.

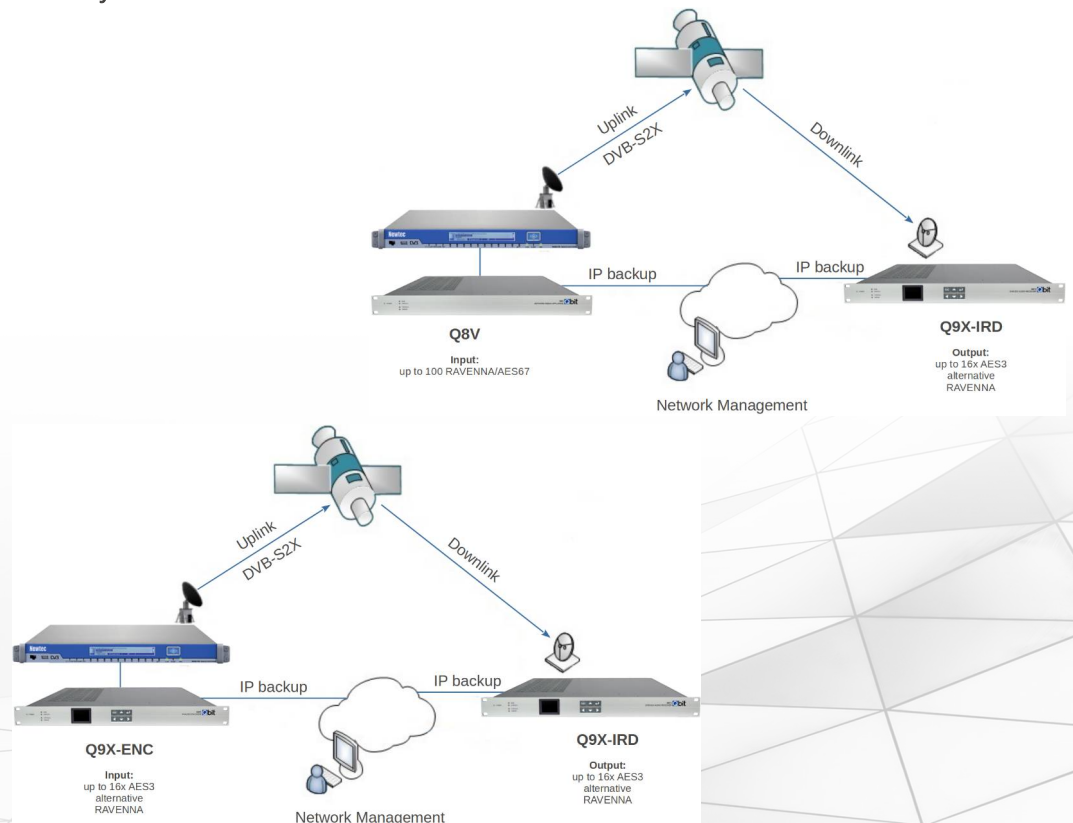
### DVB-S/S2/S2X Demodulation

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 kSym/S up to 45 Msym/S.

### Monitoring

The Q9X-IRD 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



# Q9X-IRD DVB-S2X AUDIO RECEIVER

## 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	▶ 0.35 to 45 Msymbols/s ▶ 0.1 to 45 Msymbols/s (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
RAVENNA / AES67	Output of up to 16 stereo channels ▶ Formats: L16, L24, L32 ▶ Sampling rate: 32 kHz, 48 kHz ▶ Channels: 1 to 64
DANTE®	
FEC	Pro-MPEG compliant
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)

### Network Interfaces

2 separate Ethernet interfaces (IEEE 802.3, RJ45, 10/100 Mbit/s)
▶ Data (transport streams via IP)
▶ Control (web interface, SNMP, and ancillary data)

### Monitoring

Stream monitoring of the reception quality (signal power, CNR, SNR, BER etc.)
Silence detection
Network condition monitoring
SNMP traps and email notifications in case of triggered alarms

### Audio Specifications

XLR connectors (male)	Output for analog and digital audio signals
Digital	Up to 16 AES/EBU, electrical, XLR (IEC958)
Analog	▶ 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, XLR, balanced
Audio channel configurations	▶ Mono L/R, L+R mix ▶ Dual Mono ▶ Stereo, Joint Stereo
THD+N, 1 kHz at max. level	< 0.01 % at 1 kHz
Dynamic range	> 80 dB
Crosstalk attenuation at 1 kHz	> 100 dB
S/N ratio (weighted)	> 80 dB
Compression algorithms	▶ MPEG-1 Layer 2 (ISO/IEC 1172-3, 13818-3) ▶ MPEG-2 AAC (ISO/IEC 13818-7) ▶ MPEG-4 AAC LC, HE-AAC, HE-AAC V2, AAC LD (ISO/IEC 14496-3) ▶ Enhanced aptX
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	▶ 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

Modern Web UI
SNMP
Via the front panel keyboard and display

### Power Requirements

Voltages	▶ 100 to 240 V +/- 10 %, 50 to 60 Hz ▶ -48 V DC (optional) ▶ Redundant power supply (optional)
Power consumption	30 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)

# Q9X-IRD DVB-S2X AUDIO RECEIVER

## Ordering Options



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