

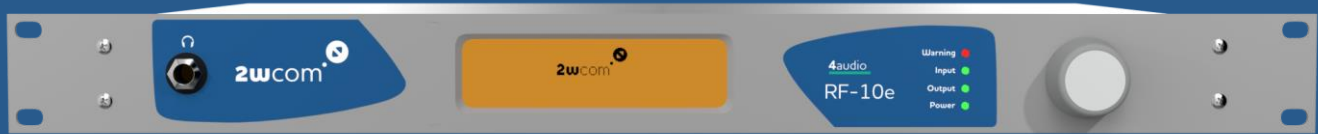
RF-10e

FM/DAB+ receiver

Professional, flexible 10-channel FM/DAB receiver



RF-10e – FM/DAB+ receiver 1/2



FM / DAB+ audio distribution via IP or DVB-ASI

The RF-10e is a 10-channel receiver for FM and DAB+. It encodes the received audio signals for distribution as Audio over IP, MPEG-2 TS or DVB-ASI.

Hardware

- ▶ Combined RF interfaces for DAB & FM reception
- ▶ Multiple, free programmable, freely combinable, and redundant outputs (2 IP ports, 2 ASI ports)

Audio coding – fitting to your needs

High quality multi-format audio encoding

- ▶ MPEG 1/2 Layer 1, 2, 3
- ▶ G.711, G.722, PCM
- ▶ Opus
- ▶ Ogg Vorbis
- ▶ MPEG 2/4 AAC LC, HEv1 & v2
- ▶ MPEG 4 AAC LD/ELD/ELdv2
- ▶ Extended HE-AAC (xHE-AAC)
- ▶ Enhanced aptX (E-aptX)
- ▶ Optional: Dolby Digital Pro / E encoder supporting AC3, Dolby E, Dolby Digital (DD) and Dolby Digital Plus (DD+)

IP streaming (unicast, multiple unicast & multicast)

Rock solid network connection even in stress conditions according to standards RFC 3550, RFC 3551, RFC 3640, RFC 2250

- ▶ Professional audio IP streaming using UDP, RTP and SIP / SDP (standardized by EBU N / ACIP Tech 3326)
- ▶ PRO MPEG FEC, Dual streaming
- ▶ Optional: Livewire / Ravenna (SIP, SAP, RTSP, AES67)
- ▶ TS RTP, UDP and SRT streaming
- ▶ SRT Secure Reliable Transport
- ▶ Optional: Stream4Sure; 2wcom streaming technology with different codecs / qualities and seamless switching of up to 4 Streams
- ▶ HLS, Icecast source client

Backup / advanced redundancy management

- ▶ Dual IP ports for data + 1 IP port for control interface
- ▶ Optional: redundant power supply 230 VAC or 48 VDC

Control

- ▶ Remote control with various possibilities: HTTP/S, SFTP, Telnet, NMS, SNMP
- ▶ Revised configuration via web user interface for easier setup
- ▶ SNMP v2c / v3, relays, inputs



RF-10e FM/DAB+ receiver 2/2

Special

- ▶ Energy efficient 24/7 broadcast quality
- ▶ RDS decoding (built in RDS / UECP decoder)
- ▶ Embedded auxiliary data (RBDS / RDS or PAD) and GPIO forwarding
- ▶ Optional: Perfect network synchronization for SFN

Monitoring

- ▶ MPEG parameters via SNMP v2c and relay
- ▶ Headphone output
- ▶ Icecast Live Listening
- ▶ FM RDS monitoring and optional alarm control (PI, PS)

Advanced control functionalities

- ▶ HTTP/HTTPS: via web interface
- ▶ NMS: Control via centralized network management system

Advanced IP robustness functionalities

- ▶ Operates under stressful network conditions
- ▶ PRO MPEG FEC
- ▶ Management of packet size, buffer and QoS
- ▶ Optional: Stream4Sure – 2wcom streaming technology with different codes / qualities and seamless switching of up to 4 streams

Perfect latency management

- ▶ Optional: GPS/1PPS based 2wcom latency control solution usage in SFN FM networks

Highly sophisticated monitoring and alarm concept

- ▶ Adjustable silence detection
- ▶ IP buffer and jitter check
- ▶ SNMP, alarm & event logging



Technical details 1/2



Input

RF

Connector	10x F connector female
Impedance	50 Ω
Frequency range (FM)	87.5...108.0 MHz 76.0...90.0 MHz (Japan) 50/100 kHz steps
RF sensitivity (FM) (S/N 40 dB, stereo)	35 dB μ V
Max. RF input (FM)	120 dB μ V
Frequency range (DAB)	168-240 MHz (Band III)
RF sensitivity (DAB)	10 dB μ V
Max. RF input (DAB)	100 dB μ V

Audio (encoder)

Codecs

Standard	MPEG 1/2 Layer 2, 3 G.711, G.722, PCM Opus, Ogg Vorbis, MPEG 2 / 4 AAC LC, HEv1 & v2, MPEG 4 AAC-LD/ELD/ELD v2, extended HE-AAC (xHE-AAC), enhanced aptX (E-aptX) Optional: Dolby Digital Pro / E encoder supporting AC 3, Dolby E, Dolby Digital (DD) and Dolby Digital Plus (DD+), Optional: MPX
Sample rates	8, 16, 32, 44.1, 48 kHz

Interfaces

Audio

Headphone (out)	L/R, < 10 Ω , 6,3 mm
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Ethernet

Data	Audio, controlling and setup functions
Connector	3x RJ45
Type	Auto switching 10/100/1000 BASE-T
Protocol	RTP/RTCP/UDP, IGMP, ICMP, DHCP, HTTP, SFTP, SNMPv2c, SNMPv3, NTP, TCP (Iccast), HLS

Transport stream

ASI IN	BNC – 75 Ω
ASI OUT	BNC – 75 Ω

Contact closure

Inputs	8 inputs
Outputs	8 floating relays (7x SPST, 1x SPDT) (for DC: max. 30 V, 0.5 A) 26 pole sub-D male

Time synchronization (optional)

PTPv2	Network synchronization according to IEEE 1588- 2008
SYNC IN	BNC – 75 Ω - 1PPS
SYNC OUT	BNC – 75 Ω - 1PPS

Technical Details 2/2

Control & monitor

Ethernet

Data	Control and setup functions
Protocol	2wcom NMS, Telnet, HTTP/HTTPS, UDP, IGMP, ICMP, DHCP, SFTP, SNMPv2c, SNMPv3

Front panel

LCDisplay	Graphical, 264x64 pixel
Jog wheel	Impulse, enter button
4 Duo LEDs	Power, input, output, warning

General data

Power consumption	<20W
Case dimensions	19", 1 HU, Depth: 310 mm, Width: 424 mm, Front panel: 484 mm
Weight	< 5 kg
Material	Steel plate (aluminium-zinc coated)
Operating temp. range	0...+45°C
Storage temp. range	-40...+70°C
Languages	English

Power supply

Standard	1x internal, 90...260 VAC, 47...63 Hz (IEC power connector)
Optional version 1	Two internal redundant power supplies (90...230 VAC or 48 VDC) aut. switchover
Optional version 2	Two external hot swappable redundant power supplies (90...230 VAC or 48 VDC) aut. switchover

Internal storage

Data	internal audio files
Size	7 GB (optional 1000 GB)