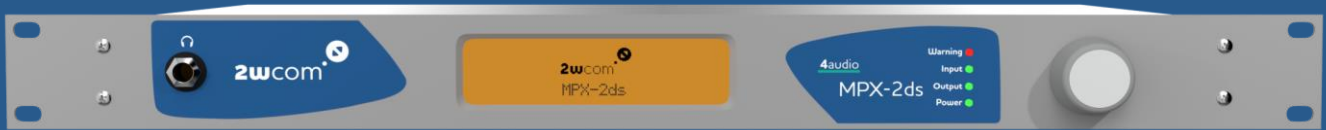


# MPX-2ds Dual channel MPX decoder

Professional dual channel FM-MPX IP codec with satellite tuner

# MPX-2ds – MPX over IP decoder with satellite tuner



## MPX-2ds Base unit

- ▶ Base unit with decoding function
- ▶ Dual channel, one channel activated
- ▶ Analog & Digital MPX interface
- ▶ ProMPEG FEC Practice #3 release 2 to reduce packet loss and burst errors in IP data stream
- ▶ Dual Left/Right audio decoded MPX output via BNC
- ▶ 2x Gigabit IP Interface
- ▶ Integrated Satellite tuner

## Options: MPX-2ds

- ▶ Option: Activation of the 2<sup>nd</sup> MPX decoder  
MPX-2ds supports 2x MPX over IP
- ▶ Option:  $\mu$ MPX decoder (instead of a 2<sup>nd</sup> MPX decoder)
- ▶ Option: Dual Streaming  
Simultaneous transmission and reception of 2 IP streams and seamless exchange of IP packages in case of failure
- ▶ Option: SFN/1PPS  
Synchronization of MPX streams for FM-SFN networks accurate to the microsecond
- ▶ Optional 2x 230VAC internal PSU's or hot-pluggable power supplies
- ▶ Optional: integrated dual satellite tuner

## Flexible in application

- ▶ Synchronization with microsecond accuracy is possible by an implemented latency control (useful for synchronous playout)
- ▶ One device can be used for two separate FM-MPX streams
- ▶ The stream can be received via IP or satellite (one can be the backup)

## Pay as you grow

- ▶ Upgradable, because of pure SW module
- ▶ Scalable up to 2 MPX decoder modules in one device

## Hybrid operation

- ▶ Forwarding the MPX signal via IP or via SAT by using MPE to increase coverage

## Transmission robustness

- ▶ Dual Streaming to increase transmission robustness
- ▶ Pro-MPEG FEC (Forward Error Correction) to reduce bit errors in data stream



# Technical details 1/2



## Audio

### Codecs

<b>Type</b>	100% lossless audio for decoding
<b>Bit depth</b>	16, 20, 24 bit
<b>Encoding type</b>	PCM raw
<b>FEC</b>	ProMPEG FEC #3 release 2
<b>Bandwidth</b>	2.4 up to 22.7 MBPS

## Decoder outputs

### FM MPX signal

<b>Signal</b>	FM MPX digital or analog
<b>Frequency response</b>	20 Hz – 90 kHz: <0.05 dB
<b>Stereo separation</b>	>55 dB
<b>Harmonic distortion</b>	<0.0025 dB
<b>SNR (CCIR-weighted)</b>	>75 dB
<b>SNR (A-weighted)</b>	>90 dB
<b>Connectors MPX OUT</b>	2x XLR (digital), balanced, >10 kΩ 2x BNC, 75 Ω, analog, unbalanced

### FM μMPX signal

<b>Signal</b>	analog
<b>Frequency response</b>	40 Hz – 15 kHz: <0,15dB
<b>Stereo separation</b>	>36dB @500Hz >50dB
<b>Harmonic distortion</b>	>56dB bzw. <0,16% @500Hz >70dB bzw. <0.035%
<b>SNR (CCIR-weighted)</b>	>69dB
<b>SNR (A-weighted)</b>	>78dB

### audio signal (optional)

<b>Signal</b>	L+R analog audio
<b>Frequency response</b>	20 Hz – 90 kHz: <0.05 dB
<b>Stereo separation</b>	>55 dB
<b>Harmonic distortion</b>	<0.0025 dB
<b>SNR (CCIR-weighted)</b>	>75 dB
<b>SNR (A-weighted)</b>	>90 dB
<b>Connectors L+R OUT</b>	2x BNC, 75 Ω, analog, unbalanced

### Interfaces

#### Synchronization

<b>External</b>	1PPS, PTP, REF IN
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## Satellite tuner

### Inputs F-Jack

<b>Input 1</b>	F-Jack
<b>Input or Output 2</b>	F-Jack
<b>Frequency</b>	950 ... 2150 MHz
<b>Input Level</b>	-75 ... -20 dBm

### Satellite Modulation

#### DVB-S (EN 300 421)

<b>Standard Modulation /</b>	QPSK (0.256 ...
<b>Symbol Rate</b>	45MSym/s)
<b>Modulation Type</b>	CCM
<b>Roll-off</b>	0.20 ... 0.35
<b>FEC</b>	Viterbi, Reed Solomon ½, 2/3, ¾, 5/6, 6/7, 7/8



## Technical details 2/2

### DVB-S2 (EN 302307)

<b>Standard Modulation / Symbol Rate</b>	QPSK (0.256 ... 45 MSym/s) 8PSK (0.256 ... 45 MSym/s) 16APSK(0.256 ... 45 MSym/s)
<b>Modulation Type</b>	CCM, VCM, ACM
<b>Roll-off</b>	0.20 ... 0.35
<b>Frame Type</b>	Short, Normal
<b>FEC</b>	LDPC, BCH $\frac{1}{4}$ , $\frac{1}{3}$ , $\frac{2}{5}$ , $\frac{1}{2}$ , $\frac{3}{5}$ , $\frac{2}{3}$ , $\frac{3}{4}$ , $\frac{4}{5}$ , $\frac{5}{5}$ , $\frac{8}{9}$ , $\frac{9}{10}$
<b>Transport Stream Processing</b>	Single Transport Stream, Multiple Transport Stream, Generic Stream
<b>PL Scrambling</b>	ID 0 ... 262144

### Front Panel

<b>Headphone</b>	6.3 mm / 1/4" socket
<b>LEDs</b>	Power, Input, Output, Warning
<b>Operation</b>	Display and Jog Wheel

### Back Panel

#### Power supply

<b>Single supply</b>	230 VAC or -48 VDC
<b>Dual supply (optional)</b>	Second integrated 230 VAC or -48 VDC power supply with auto switchover and prioritisation
<b>Redundant hot plug power supply (optional)</b>	Hot pluggable redundant power supply, each combination of 230 VAC and 48 VDC is possible, with auto switchover and prioritisation

### Gigabit IP

<b>Type</b>	10/100/1000 Base-T
<b>Data</b>	MPEG TS or RAW Data via UDP, UDP/RTP, as Unicast or Multicast IGMPv2 Optional: dual streaming
<b>Connectors</b>	3x RJ45 (2x Data & 1x Control)

### General data

<b>Power consumption</b>	20 VA
<b>Case dimensions</b>	19", 1RU 310x424x484 (d x w)
<b>Weight</b>	< 4 kg
<b>Housing</b>	Steel plate (aluminium-zinc coated)
<b>Operating temp. Range</b>	0 ... +45°C
<b>Storage temp. Range</b>	-40 ... +70°C
<b>Supply voltage</b>	90 ... 260 V AC 47 ... 63 Hz -48V DC (option)
<b>Language</b>	English