

**MPX-2c**

# **Dual channel MPX codec**

Professional dual channel MPX IP codec



# MPX-2c – MPX over IP codec



## MPX-2c Base unit

- ▶ Base unit with decoding function
- ▶ Dual channel, one channel activated
- ▶ Analog & Digital MPX interface
- ▶ Pro-MPEG FEC Practice #3 release 2 to reduce packet loss and burst errors in IP data stream
- ▶ Free configurable GPIO interface
- ▶ RS232 interfaces are flexibly assignable to the services
- ▶ 2x Gigabit IP Interface
- ▶ Optional 2x 230VAC internal PSU's or hot-pluggable power supplies

## Options: MPX-2c

- ▶ Option: Activation of the 2<sup>nd</sup> MPX codec  
MPX-2c supports 2x MPX over IP
- ▶ Option: Activation MPX encoder  
MPX-2c acts as a MPX over IP encoder
- ▶ Option: Dual Streaming  
Simultaneous transmission and reception of 2 IP streams and seamless exchange of IP packages in case of failure
- ▶ Option: Dual Left/Right audio decoded MPX output via BNC
- ▶ Option: SFN/1PPS  
Synchronization of MPX streams for FM-SFN networks accurate to the microsecond
- ▶  $\mu$ MPXecoder or encoder

## Flexible in application

- ▶ Synchronization with microsecond accuracy is possible by an implemented latency control (useful for synchronous playout)
- ▶ One device can be used as an encoder or as a decoder
- ▶ Combinable with a satellite tuner

## Pay as you grow

- ▶ Upgradable, because of pure SW module
- ▶ Scalable up to 2 MPX encoder and 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



## Codecs

### PCM

<b>Bit depth</b>	12 - 16, 20, 24 bit
<b>FEC</b>	R1ST, ProMPEG FEC #3 release 2
<b>Bandwidth</b>	2.4 - 4.6 Mbps (no FEC)

### μMPX

<b>Bitrates kbit/s</b>	320, 384, 448, 576, 800
<b>FEC</b>	μMPX FEC, R1ST, Pro-MPEG FEC #3 release 2
<b>Bandwidth</b>	320 - 800 kbps (no FEC)

## Decoder outputs

### Connectors MPX OUT

<b>Digital</b>	2x XLR (digital), balanced, 110 Ω
<b>Analog</b>	2x BNC, analog, unbalanced

### FM MPX signal

<b>Signal</b>	FM MPX digital
<b>Signal</b>	FM analog L+R Signal
<b>Frequency response</b>	20 Hz – 90 kHz: <0.05 dB
<b>Stereo separation</b>	>55 dB
<b>Harmonic distortion</b>	<-90 dB
<b>SNR (CCIR-weighted)</b>	>75 dB
<b>SNR (A-weighted)</b>	>90 dB

### FM μMPX signal

<b>Signal</b>	Analog or digital
<b>Frequency response</b>	20 Hz – 66 kHz: <0,15 dB
<b>Stereo separation</b>	@500Hz >50 dB
<b>Harmonic distortion</b>	@500Hz < -70 dB
<b>SNR (CCIR-weighted)</b>	>69 dB
<b>SNR (A-weighted)</b>	>78 dB

## Encoder inputs

### Connectors MPX IN

<b>Digital</b>	2x XLR, balanced, >20 Ω, digital
<b>Analog</b>	2x BNC, 75 Ω, analog unbalanced

### FM MPX signal

<b>Signal</b>	FM MPX digital or analog
<b>Frequency response</b>	20 Hz – 90 kHz: <0.05 dB
<b>Input voltage range</b>	0 ... 14 dBu

### Synchronization

<b>External</b>	1PPS, PTP, NTP
-----------------	----------------

## 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



## Technical details 2/2

### 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)

#### Contact closure

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

#### Serial

<b>Interface</b>	2x RS-232 Sub D-9 using break-out cable
<b>Data transmission format</b>	MPEG ancillary data embedded in audio (IRT) own IP link
<b>Transmission rate</b>	1200 to 115200 baud, asynchronous

### General data

<b>Power consumption</b>	20 VA
<b>Case dimensions</b>	19", 1RU Depth 310 mm Width 424 mm Front panel: 484 mm
<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