

SigmaCom Broadcast



EtherMPX

NEW VERSION 2



EtherMPX

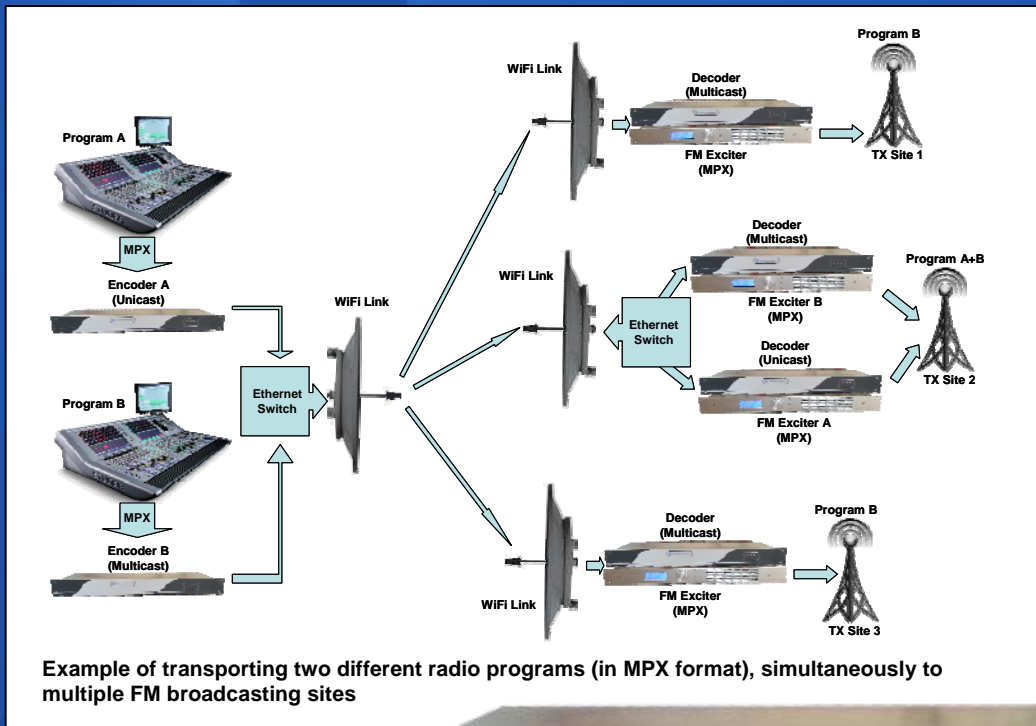
What is EtherMPX?

EtherMPX is an IP STL system from Sigmacom Broadcast, designed to transport real time L/R or MPX signal from studio to transmitter, through TCP/IP network (wired or wireless). A **direct replacement** for your analog STL.

Professional IP STLs, must deliver uncompromised quality, without modulation overshoots, no audible latency for live on-air monitoring and time accuracy for SFN operation. Should be made of high reliability and dedicated hardware, unlike ordinary computer systems, and specifically designed to operate in harsh environment like the mountains where the transmitters are located.

EtherMPX is an IP STL designed exactly with these principles. It has **the advantage to transport Analog or Digital MPX** and Analog or Digital L/R, **with 2.5mS latency**, at PCM linear (uncompressed) professional 24bit 48kHz (L/R mode) or 24bit 192kHz (MPX mode).

High stability, low-jitter internal clock sources, smart software buffering techniques and Asynchronous Sample Rate Converters, assure flawless operation. State-of-the-art components for the analog section provide high end quality, with DC coupled inputs & outputs.



Example of transporting two different radio programs (in MPX format), simultaneously to multiple FM broadcasting sites



COMPARISON

Conventional STLs

RF Analog Radio STLs, are subject to many limitations. Modulation and demodulation through analog circuitry, will always have audio quality reduction.

Problems like noise, phase & harmonic distortion, are responsible for poor MPX performance and modulation overshoots.

These issues are getting worse when cascading two or more analog STLs to transport your audio over a network of transmitters.

FM SFN operation is not really an option under these circumstances. Fees for a licensed STL frequency is another concern too.

IP STLs with compressed audio, present modulation overshoots, reduced audio quality (depends on the compression algorithm being used), huge and variable audio latency – making it impossible for on-air monitoring and SFN, respectively. Although, they are perfect solution for live events through Internet - even with low bandwidth connections.

Most of existing IP STL products, are small sized ordinary PC computers, enclosed in a 1U 19" box. There is a debate if this is the most reliable solution for a harsh environment like a TX mountain.

Last, but not least, existing IP STL systems require to put your stereo encoder at the mountain (that's usually your audio processor Omnia, Orban, etc), or bypass your stereo encoder and use their own (which adds the need for a separate MPX processor or clipper), plus they need the RDS encoder to be on the mountain. Imagine if you have to do the same setup in a network of transmitters: cost prohibited!

Our EtherMPX:

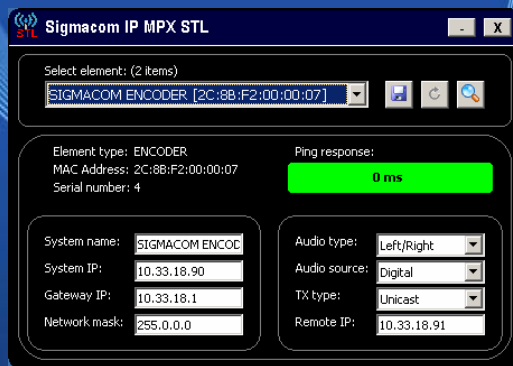
We strongly support that Broadcasting STLs are critical elements in a transmission chain and must deliver uncompromised professional quality.

- We are proud to release the first IP STL in the world, capable to transport Analog or Digital MPX signal with RDS, beside plain L/R audio.
- MPX is transported AS IT IS and NOT decomposed at encoder side, and then recomposed at decoder side.
- Unicast or Multicast operation to feed an entire network of FM transmitters with MPX from one encoder.
- Linear uncompressed PCM 24-bit audio.
- Very low audio latency: 2,5mS in MPX mode.
- Perfect match with SigmaCom DDS-30 Exciter, the first in the world that accepts Digital MPX.
- Can be used with high quality 802.11a Ethernet links.
- DC coupled, TRUE balanced Analog inputs & outputs.
- No modulation overshoots due compression or AC capacitor coupling.
- Decoder provides simultaneously Analog & Digital output for transmitter redundancy.
- Aux RS232 serial transparent link, Studio to Transmitter.
- Auto switchover to Analog input when Digital signal is lost.
- Remote control & management via Management Console Software, supporting unlimited number of STLs!

Options:

- Support for digital SFN operation (OPT-001)*
- Support for analog SFN operation (OPT-002)*
- Aux management Ethernet port & web GUI (OPT-003)*
- Internal mp3 emergency backup player (OPT-004)*
- Ultra low latency 1,25mS MPX (OPT-005)*
- Battery backup (OPT-006)
- Silent detector & switchover to ext MPX (OPT-007)

*Available in H2 2013



Centralized management & control software of EtherMPX encoders & decoders

Technical specifications - Version 2.1

GENERAL	
Model name	<i>EtherMPX</i>
Dimensions	19" 1U chassis
Power supply	230VAC 50Hz, 10W
Operating temp	-20 to +60 Celsius
Transport protocol	Proprietary UDP Unicast or Multicast
QoS management	IETF RFC2474 compliant
Audio compression	None (Linear PCM)
Audio resolution	8 – 24bit for Digital L/R & MPX input 24bit for Digital L/R & MPX output 24bit for Analog L/R & MPX output
Audio sample rate	8 – 192kHz input for Digital L/R input* 174-192kHz input for Digital MPX input* 48kHz internal for Analog L/R input 192kHz internal for Analog MPX input
Audio latency	L/R mode: 5mS (up to 40mS on busy net) MPX mode: 2,5mS (up to 20mS on busy)
Network usage	L/R mode: 2,37 Mbit/s typ MPX mode: 4,74 Mbit/s typ

ENCODER	
Input name	Port A
Input type	Digital electrical interface
Connector	XLR-3 female
Impedance	110 Ohm balanced - transformer isolated
Supported formats	AES3, IEC60958, S/PDIF
Maximum data rate	12.288 Mbit/s
Audio sample rate	32 - 192 kHz (174-192kHz for D-MPX)
Audio sample resolution	24 bit

Input name	Port B
Input type	Analog electrical interface - 2 inputs
Connector	2 x XLR-3 female (balanced R, L/MPX) 1 x BNC female (unbalanced MPX only)
Impedance	1 kOhm
ADC resolution	24 bit
ADC sample rate	48kHz for L/R input, 192kHz for A-MPX
ADC THD+N	-106dB (0.0005%)
ADC Dynamic range	121 dB (no weighting)
Channel separation	135 dB
Reference input	3.47Vpp (+4dBu) for 0 dBFS
Input BW @ 48kHz SR	-0.1dB @ 20 kHz
Input BW @ 192kHz SR	-0.1dB @ 80 kHz

DECODER	
Output name	Port A
Output type	Digital electrical interface
Connector	XLR-3 male
Impedance	110 Ohm balanced, transformer isolated
Format	AES3
Maximum data rate	12.288 Mbit/s
Audio sample rate	48kHz for L/R output, 192kHz for D-MPX
Audio sample resolution	24 bit

Output name	Port B
Output type	Analog electrical interface - 2 outputs
Connector	2 x XLR-3 male (balanced R, L/MPX) 1 x BNC (female unbalanced MPX only)
Impedance	1 kOhm
DAC resolution	24 bit
DAC sample rate	48kHz for L/R output, 192kHz for A-MPX
DAC THD+N	-108dB (0.0004%) at 48kHz L/R out -96dB (0.0015%) at 192kHz A-MPX out
DAC SNR	129dB at 48 or 192kHz
DAC Dynamic range	129 dB (A weighted) at 48 or 192kHz
Channel separation	124 dB at 48kHz L/R output Infinite at 192kHz A-MPX output
Reference output	3.47Vpp (+4dBu) for 0 dBFS
Out BW @ 48kHz SR	-0.1dB @ 21.8 kHz
Out BW @ 192kHz SR	-0.1dB @ 87.2 kHz

EXT CLOCK INPUT (optional)	
Input name	Port D
Input type	10MHz SYNC CLOCK IN
Connector	SMA Female
Impedance	50 Ohms

SERIAL PORT LINK	
I/O name	Port C
I/O type	RS232C electrical interface
Connector	DB-9 Female at Encoder DB-9 Male at Decoder
Supported data rates	1200, 4800, 9600, 38400, 57600, 115200 bps
Direction	Single (Encoder -> Decoder only)



NOTE: These are preliminary technical specifications and might change without notice. Please do not hesitate to contact us for the most updated information at: support@sigmacom.gr