Xenon

Digital Audio Routing

Balanced and unbalanced digital audio switching is now available for the Xenon multi-format router. The innovative design allows the Xenon to simultaneously support asynchronous and synchronous audio switching within a single frame alongside HD/SD video routing. The synchronous audio switching mode also supports a number of additional features such as Soft Switching, Dual Routing, Wild Shuffling and Mono Mixing while the advanced SRC mode provides Sample Rate Conversion. Data signals such as Dolby E can be switched to bypass the Soft Switch and SRC circuitry in order to prevent corruption of the signal.

64x64 4RU Digital Audio Xenon - balanced I/O (128x128 8RU frame is also available)

Asynchronous mode – a simple low cost crash switch router.

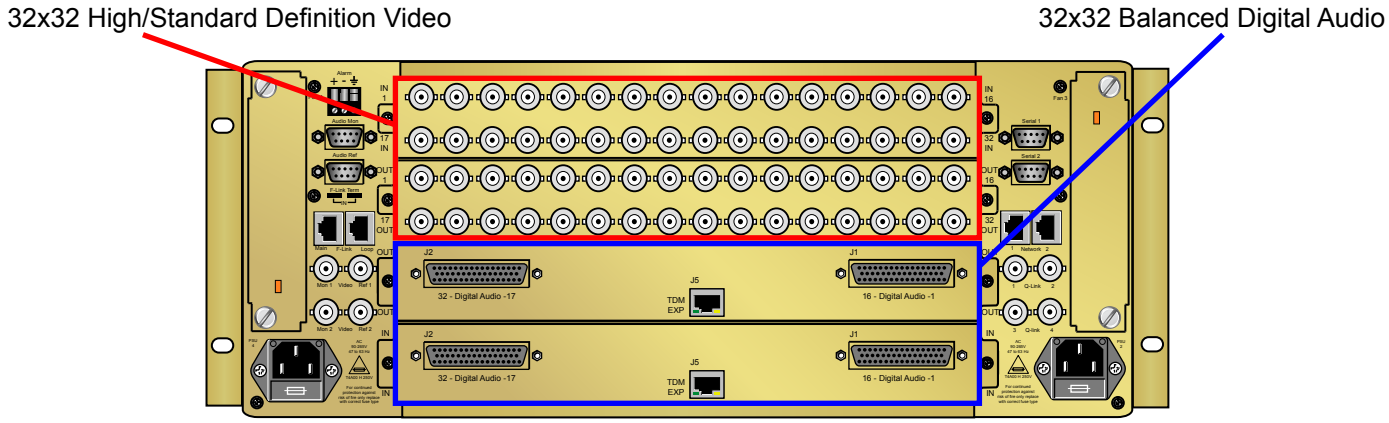
Synchronous mode – provides a clean switch between audio sources provided they are all synchronised to a common studio reference. The synchronous operation will also align locked but misaligned digital audio signals to the routers reference. A number of extra features such as I/P & O/P Gain Control, Mono Mix, Soft Switching, Dual Routing and Wild Shuffling are also available with synchronous operation.

SRC mode – provides the same level of functionality as the synchronous operation but also includes the additional facility of Sample Rate Conversion (SRC). The SRC circuitry allows the router to harmonise input sources of various frequencies to the routers reference input, either 48kHz or 96kHz.

Bypass mode – the Soft Switch or SRC circuit can be bypassed in order to allow Dolby E and other AES and non-AES formats to be switched through the router. Dolby E and other non-AES data can be routed through the Asynchronous router without being affected.

Multi-Format Routing

Xenon is a multi-format router and so can be configured with a mix of video and audio modules. Therefore the digital audio element of Xenon may part-populate or fully populate the router frame.

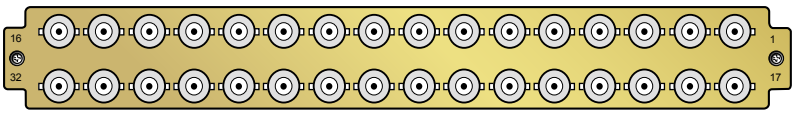


4RU Multi-Format configuration

Balanced and Unbalanced AES audio

The modular nature of the Xenon router enables simultaneous support of both AES3 balanced (D50) and AES3id unbalanced (BNC) audio inputs and outputs.

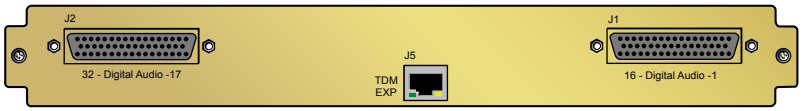
Balanced Digital Audio I/O Fin



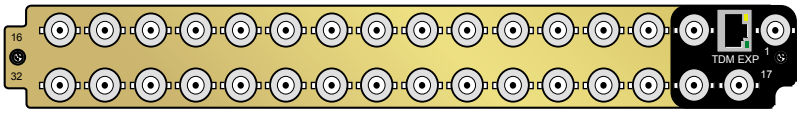
Unbalanced Digital Audio I/O Fin

Router Size

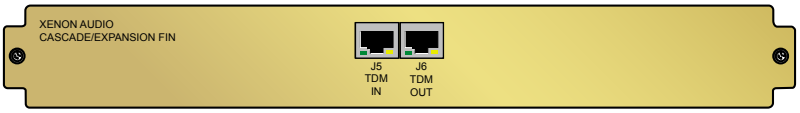
Configured in steps of 32 the Xenon can be internally expanded up to 64x64 within a 4RU frame and up to 128x128 within an 8RU frame.



Balanced Digital Audio I/O Fin with TDM expansion port



Unbalanced Digital Audio I/O Fin with TDM expansion port

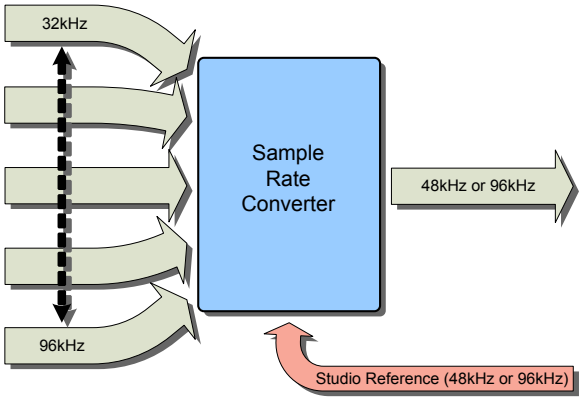


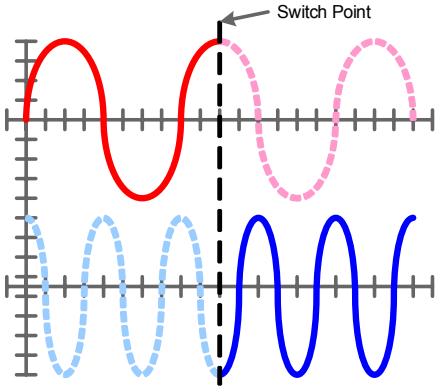
TDM Cascade/Expansion Fin

External expansion

The Xenon digital audio architecture has been designed for expansion beyond 128x128 by the development of a TDM bus. The TDM bus will allow a synchronous AES systems to expand beyond a single frame using low cost Cat 5 cabling.

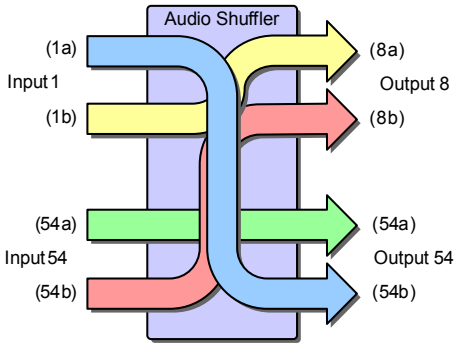
Sample Rate Conversion
Sample Rate Conversion (SRC) allows the Xenon router to accept input sample rates between 32kHz and 96kHz. These sample rates are then converted to the selected sample rate of the router, 48kHz or 96kHz, before being switched to the output. The use of Sample Rate Conversion removes the complexity that is often associated with routing audio signals with different sample rates. Output sample rates other than 48kHz or 96kHz can be handled by switching selected outputs into a mode that bypasses the Sample Rate Converters.

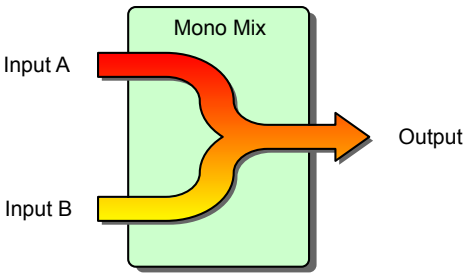




Soft Switch
Synchronisation does not eliminate audible switching ‘clicks’ as the switch may take place when the difference in the source amplitudes is large. To avoid the fast transition caused by this large difference in source amplitudes the Xenon router uses a programmable Crossfade to switch between the sources. The duration of the Crossfade can be set between 0 and 20 mSeconds. This guarantees a “click-free” switch every time. Crossfading is preferable to a ‘V’ fade as it avoids the dip in audio level resulting from a ‘V’ fade.

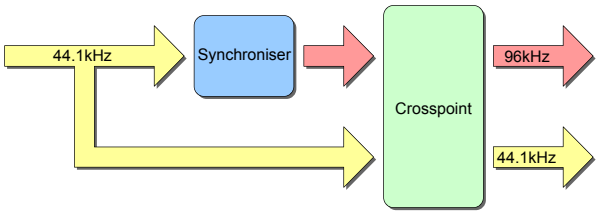
Wild Shuffling
All synchronised sources can be wild shuffled. Wild shuffling allows any input audio track to be selected and grouped together with any other audio track. This new audio stream can be routed to the required destination. This allows a 128 x 128 stereo router to become a 256 x 256 mono router.





Mono Audio Mix
Mono audio mix enables the router to mix together two selected mono audio tracks. The router combines the two audio tracks together to give a single mono mixed audio track which is then routed to the chosen destination. Output = ½ (Input A + Input B)

Gain adjustment
The gain for each half of the stereo pair on both the input and the output can be individually controlled. The adjustment range +12dB to -34dB in increments of 0.002dB. This facility is only available on the synchronous router.



Dual Routing
The Xenon router has the innovative feature of dual routing, this allows for a non synchronised source (i.e. 44.1) to be routed directly (frame rate preserved) to an output and at the same time to be routed to another output via the synchroniser. Thereby allowing the advanced switching options to be used at the same time as crash routing.

Supported Audio Sample Rates

Asynchronous	Input	- 24kHz through to 192kHz
	Output	- 24kHz through to 192kHz
Synchronous	Input	- 24kHz through to 192kHz in bypass mode
		- 48kHz or 96kHz in Synchronous mode
	Output	- 24kHz through to 192kHz in bypass mode
		- 48kHz or 96kHz in Synchronous mode
Advanced synchronous	Input	- 24kHz through to 192kHz in bypass mode
		- 48kHz or 96kHz in Synchronous mode
		- 32kHz through to 96kHz in SRC mode
	Output	- 24kHz through to 192kHz in bypass mode
		- 48kHz or 96kHz in Synchronous mode
		- 48kHz or 96kHz in SRC mode

Xenon Digital Audio - ordering options

Passive I/O Fins:

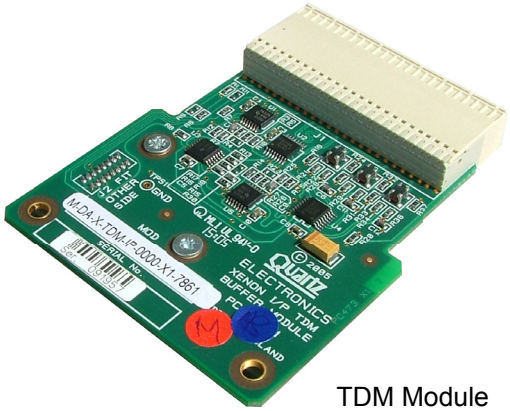
- Balanced including external TDM connector
- Unbalanced including external TDM connector

Input:

- Asynchronous input module including TDM expansion module
- Synchronous input module including TDM expansion module
- Advanced synchronous input module including TDM expansion module

Crosspoint & Output:

- Crosspoint & Output module including TDM expansion module



TDM Module