

# XE4-64x64, XE8-128x128

## Xenon Multi-Format Routers



The Complete Solution Provider



### ►Xenon: Excel Beyond Expectations

The Xenon brings many advanced new capabilities to the world of routing switchers, building on a new generation design that starts with a solid, multi-format router core. In today's broadcast environment, a router must be reliable, resilient and cost effective. The Xenon excels in all of these areas while offering the flexibility of multi-format operation, and the ability to add Signal Processing Technology.

Great care has been taken in the design of the Xenon to avoid single points of failure. Active assemblies are all hot-swappable from the front of the frame. Power, control, cooling and reference generation are available in redundant configurations.



### ►Features & Benefits

#### Configuration

The Xenon allows any mix of formats within a frame in independent blocks of 32 inputs or outputs. Any of the supported formats, 3G/HD/SD/AES/Analog can be expanded to fill an entire 128 x 128 frame. Additionally the Xenon supports optical routing from 3Mb/s to 3Gb/s in blocks of 32 inputs or outputs.

The Xenon is housed in a 4RU frame, switching up to 64 sources to 64 destinations, or in an 8RU frame switching up to 128 sources to 128 destinations. Additional input and output modules can be installed into the router at anytime.

#### Control

The Xenon router includes, as standard, an internal Frame Controller module which supports four Q-Link ports, two Ethernet ports and two Serial ports mounted on the rear of the router.

The Xenon has a number of control options, they are:

Remote Control Panel: Any panel(s) from the entire range of Quartz remote control panels can be used with the Xenon router connected via Q-Link.

External third party control: The Xenon router can be remotely controlled via an external third party control device, such as an automation system, when connected to the router's serial port.

#### Expansion

The input and output stages of the Xenon can be expanded in steps of 32 at any time by adding additional I/O modules. The Xenon can not be expanded beyond its frame size.

#### Power Supply

The power supplies for the Xenon are internal. The 4RU & 8RU frame can be fitted with an optional redundant power supply with separate AC power inlet & alarm output.

#### Designed for Performance Ultra Wide Band Routing

By offering a format independent data path, the Xenon supports signals from 3Mb/s all the way up to 3Gb/s including SD-SDI, HD-SDI, 3G-SDI, DVB-ASI, SMPTE ST 310-1 digital video formats as well as optical formats and other high data rate signals.

#### Video

Xenon supports 3G, HD, SD and ASI video routing. It is available as 3G/HD/SD or HD/SD or SD only, offering cost savings for those who do not require 3G and or HD capability. For those applications requiring the signal to be relocked, relocking modules can be added in blocks of eight outputs.

#### Audio

The Xenon router is a fully featured Stereo Audio router. Xenon supports AES and Analog Audio routing. Balanced AES or unbalanced AES on BNCs are supported in any mixture in blocks of 32 inputs or outputs. The Xenon also supports analog routing. Analog audio I/O is converted and routed as digital so that analog sources can route to AES destinations and AES sources can route to analog destinations. Analog blocks are in groups of 32 stereo pairs. The Xenon can optionally support Mono routing for AES and Analog audio by adding the +SS option. Additionally, the xenon also supports MADI I/O as an option on all audio i/o cards. On input cards this ADDS a MADI connector for MADI input. Note that these inputs are IN ADDITION TO the analog or AES base I/O. On output cards a MADI output connector is ADDED. This too offers MADI outputs IN ADDITION to the base I/O card.

#### Signal and System Monitoring

Xenon supports SNMP signal monitoring and comprehensive system monitoring, including power supply voltages, interior temperatures and fan speeds. System status may also be monitored remotely by a network based remote connection over TCP/IP or a direct serial connection to a PC. User-configurable closing contacts are also provided for connection to an external alarm system.

#### X-LINK

X-LINK outputs are an additional set of outputs from Evertz® standard router platforms. They are for the purpose of providing connectivity to monitoring devices. X-LINK outputs do not reduce the number of outputs on the router, X-LINK outputs are in addition to the standard video router outputs.

#### Feature Summary

- Multiple signal formats within a single frame
- Optional output relocking in blocks of 8 outputs
- All outputs can switch in one TV frame
- Dual reference inputs
- Advanced audio features including Soft Switching
- Dolby-E™ signal compatible
- Redundant internal controllers
- Q-Link, Ethernet and RS-485 control interfaces
- Deterministic switching
- SNMP and system monitoring
- Powerful and intuitive WinSetup Software
- Clean switch option (SPT Module)

### Specifications

#### Configuration:

Inputs: Selectable in blocks of 32  
Outputs: Selectable in blocks of 32

#### Standard Definition:

##### SD Video Inputs:

Signals supported: SMPTE ST 259-1 1997, ASI DVB standard  
Signal Level: 800mV p-p nominal  
Impedance: 75Ω terminating  
Return Loss: 5 - 270MHz: 15dB typical  
Cable equalization: Belden 1694A, 250m  
Connectors: BNC per IEC 61169-8 Annex A

##### SD Video Outputs:

Signal Level: 800mV p-p ±10%  
Impedance: 75Ω terminating  
Return Loss: 5 - 270MHz: 15dB typical  
DC Offset: 0 ±0.5V  
Connectors: BNC per IEC 61169-8 Annex A

##### Signal Path:

Rise/fall times: < 0.4ns  
Path Length: 12ns, typical  
Output jitter: 0.2 UI p-p with < 250m input cable

#### High Definition:

##### HD Video Inputs:

Signals supported: SMPTE ST 292-1, SMPTE ST 424  
Signal Level: 800mV p-p nominal  
Impedance: 75Ω terminating  
Return Loss: 5 - 1485MHz: 15dB typical  
Cable equalization: Belden 1694A, 90m  
65m @ 2.97Gb/s  
Connectors: BNC per IEC 61169-8 Annex A

##### HD Video Outputs:

Signal Level: 800mV p-p ±10%  
Impedance: 75Ω terminating  
Return Loss: 5 - 1485MHz: 15dB typical  
DC Offset: 0 ±0.5V  
Connectors: BNC per IEC 61169-8 Annex A

##### Signal Path:

Rise/fall times: < 0.4ns  
Path Length: 12ns, typical  
Output jitter: 0.2 UI p-p with < 95m input cable

#### Fiber Inputs/Outputs:

SFP1T13-2: Dual Optical SFP Transmitter, Up to 3Gb/s, 1310nm  
Connector: LC/PC  
Wavelengths: 1310nm  
Output Power: -2dBm ±1dBm  
SFP1R-2: Dual Optical SFP Receiver, Up to 3Gb/s  
Connector: LC/PC  
Operating Wavelength: 1270nm to 1610nm  
Maximum Input Power: -1dBm  
Optical Sensitivity: -21dBm+/-1dBm

#### Audio Inputs - AES:

##### Balanced version (D50):

Sample rates: 32kHz, 44.1kHz, 48kHz, and 96kHz  
Standard: AES3-1992  
Signal level: 0.2-7V p-p  
Impedance: 110Ω ±20% Transformer coupled  
DC on input: ±50V  
Connectors: D50 female carrying 16 signals

##### Unbalanced Version (BNC):

Standard: SMPTE ST 276-1  
Impedance: 75Ω  
Return loss: 25dB, 0.1-6.0kHz  
Connectors: BNC per IEC 61169-8 Annex A

#### Audio Outputs - AES:

##### Balanced version (D50)

Signal level: 2-5V p-p  
Impedance: 110Ω Transformer coupled  
DC isolation: ±50V  
Rise/fall time: 3.5-10ns  
Connectors: D50 female carrying 16 signals

##### Unbalanced version (BNC):

Signal level: 1.0V p-p ±50%  
Impedance: 75Ω  
Return loss: 25dB, 0.1-6.0kHz  
Jitter: Conforms to ANSI S4.40 - 1992  
Connectors: BNC per IEC 61169-8 Annex A

#### Analog to Digital Audio Conversion:

Sampling Freq: 48kHz or 96kHz  
Connectors: 50 way "D" type female  
Freq Response: ± 0.05dB  
Input Impedance: 12kΩ minimum  
Signal Level: 0dBfs - 18dBu or 24dBu  
Noise: -113dB A-weighted  
THD+N: > 95dB (typically >98dB)  
CMRR: > 85dB @ 1kHz  
Crosstalk: < -95dB  
I/O Delay: 0.85ms @48kHz or 0.43ms @96kHz

#### Digital to Analog Audio Conversion:

Sampling Freq: 48kHz or 96kHz  
Connectors: 50 way "D" type female  
Freq Response: ± 0.06dB  
Output Impedance: 400Ω  
Signal Level: 0dBfs - 18dBu or 24dBu  
Noise: -115dB A-weighted  
THD+N: > 95dB (typically >98dB)  
DC Offset: > ±30mV  
Crosstalk: < -95dB  
I/O Delay: 1.3ms @48kHz or 0.66ms @96kHz  
Dynamic Range: 24 bits

#### Analog Audio Performance:

Sampling Freq: 48kHz or 96kHz  
Connectors: 50 way "D" type female  
Freq Response: ± 0.08dB  
Output Impedance: 400Ω  
Input Impedance: 12kΩ minimum  
Signal level: 0dBfs = 18dBu or 24dBu  
Noise: -110dB A-weighted  
THD+N: > 95dB (typically >98dB)  
DC Offset: > ±30mV  
Crosstalk: < -95dB  
I/O Delay: 1.3ms @48kHz or 0.66ms @96kHz  
Dynamic Range: 24 bits

#### Switching Reference:

Ref inputs:  
SD: 2x, BNC, analog 525/625  
HD/SD: Tri-level analog 625 or 525  
Signal level: 1V p-p ±3dB  
Impedance: 75Ω terminating  
Line switching: Lines 6/319 (625), Lines 10/273 (525)  
Line 7 (HD)  
Connectors: BNC per IEC 61169-8 Annex A

#### Electrical:

Supply: Auto ranging 100 to 240V AC  
50/60Hz

#### Power:

4RU: Typical 150VA, Max 250VA  
8RU: Typical 300VA, Max 500VA  
Not including the SPT modules  
Optional

#### Backup:

#### Physical:

Height: 4RU: 7" (178mm)  
8RU: 14" (355mm)  
Width: 19" (483mm)  
Depth: 17 3/4" (450mm)  
Weight: 4RU: 16kg (35lbs)  
8RU: 31kg (68lbs)  
Operating Temp: Spec. maintained to 30°C  
Operation to 40°C  
Ventilation: Fan cooled from the front to the rear of the left hand and right hand side of the router

#### Control:

Q-Link: 4x75Ω video cable (max length 500m)  
2xRJ45  
F-Link: 2xRJ45  
Serial RS-422/232: 2xD9 female  
Ethernet, 10baseT: 2xRJ45

#### Compliance:

Safety: CSA listed to 60065  
Complies with CE low voltage directive  
EMC: Complies with FCC Part 15, Class A  
CE EMC Directive



# XE4-64x64, XE8-128x128

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### Ordering Information

#### XE4 Up To 64x64 Base Systems

XE4-3232SX	Xenon 4RU 32x32 SD Router
XE4-3232SX+F	Xenon 4RU 32x32 SD Router (fiber capable - no modules)
XE4-3232SX+XLINK	Xenon 4RU 32x32 SD Router with 3 X-LINK outputs
XE4-3232HX	Xenon 4RU 32x32 HD/SD Router
XE4-3232HX+F	Xenon 4RU 32x32 HD/SD Router (fiber capable - no modules)
XE4-3232HX+XLINK	Xenon 4RU 32x32 HD/SD Router with 3 X-LINK outputs
XE4-3232-3G	Xenon 4RU 32x32 3G/HD/SD Router
XE4-3232-3G+F	Xenon 4RU 32x32 3G/HD/SD Router (fiber capable - no modules)
XE4-3232-3G+XLINK	Xenon 4RU 32x32 3G/HD/SD Router with 3 X-LINK outputs
XE4-3232-AESB	Xenon 4RU 32x32 Digital Audio Router (Balanced)
XE4-3232-AESB+MADI	Xenon 4RU 32x32 Digital Audio Router (Balanced) with MADI Expansion
XE4-3232-AESU	Xenon 4RU 32x32 Digital Audio Router (Unbalanced)
XE4-3232-AESU+MADI	Xenon 4RU 32x32 Digital Audio Router (Unbalanced) with MADI Expansion
XE4-3232-AA	Xenon 4RU 32x32 Analog Audio Router
XE4-3232-AA+MADI	Xenon 4RU 32x32 Analog Audio Router with MADI Expansion

#### XE8 Up To 128x128 Base Systems

When ordering a Xenon 8RU base system, use the same part numbers as the 4RU base systems but substitute XE4 with XE8. All 8RU base systems ship in 32x32 configurations.

Base systems include a frame, non-redundant power supplies, a single controller module and a single reference module.

#### Ordering Options

+2PS	Redundant Power Supply (1 required for 4RU Frame), (2 required for 8RU Frame)
+FU	Redundant Controller Module
+REF	Redundant Reference module (Can only be fitted on frames with 64 or more, outputs)
+R8	Reclocking option for 8 HD/SD outputs
+R16	Reclocking option for 16 HD/SD outputs
+R24	Reclocking option for 24 HD/SD outputs
+R32	Reclocking option for 32 HD/SD outputs
+SS	Option to synchronize audio inputs. <i>Note: This option is required for mono audio operation.</i>
+SRC	Sample Rate Converters for AES audio

#### Accessories

XE4-X-FRAME	Xenon 4RU Router Chassis
XE8-X-FRAME	Xenon 8RU Router Chassis
XE-IP32SX	32 SD inputs
XE-IP32SX+F	32 SD inputs (fiber capable)
XE-IP32HX	32 HD/SD inputs
XE-IP32HX+F	32 HD/SD inputs (fiber capable)
XE-IP32-3G	32 3G/HD/SD inputs
XE-IP32-3G-F1	32 3G/HD/SD inputs (fiber capable)
XE-IP32-AESB	32 AES Balanced inputs
XE-IP32-AESB-MADI	32 AES Balanced inputs, plus 2 MADI outputs via mini-BNC (DIN)

XE-IP32-AESU	32 AES Unbalanced inputs
XE-IP32-AESU-MADI	32 AES Unbalanced inputs, plus 2 MADI outputs via mini-BNC (DIN)

XE-IP32-AA	32 Analog inputs
XE-IP32-AA-MADI	32 Analog inputs, plus 2 MADI outputs via mini-BNC (DIN)

XE-OP32HX	32 HD/SD outputs
XE-OP32HX+F	32 HD/SD outputs (fiber capable)
XE-OP32HX-XLINK	32 HD/SD outputs via mini-BNC (DIN), plus 3 X-LINK outputs (only 1 card can be fitted in the 4RU frame and only 2 cards can be fitted in the 8RU frame)

XE-OP32SX	32 SD outputs
XE-OP32SX+F	32 SD outputs (fiber capable)
XE-OP32SX-XLINK	32 SD outputs via mini-BNC (DIN), plus 3 X-LINK outputs (only 1 card can be fitted in the 4RU frame and only 2 cards can be fitted in the 8RU frame)

XE-OP32-3G	32 3G/HD/SD outputs
XE-OP32-3G+F	32 3G/HD/SD outputs (fiber capable)
XE-OP32-3G-XLINK	32 3G/HD/SD outputs via mini-BNC (DIN), plus 3 X-LINK outputs (only 1 card can be fitted in the 4RU frame and only 2 cards can be fitted in the 8RU frame)

XE-SPT-AVP-H	HD/SD Line Synchronizer and Audio SoftSwitch module with video and audio processing functions
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XE-SPT-AVP-3G	3G Line Synchronizer and Audio SoftSwitch module with video and audio processing functions
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XE-OP32-AESB	32 AES Balanced outputs
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XE-OP32-AESB-MADI	32 AES Balanced outputs, plus 2 MADI inputs via mini-BNC (DIN)
XE-OP32-AESU	32 AES Unbalanced outputs

XE-OP32-AESU-MADI	32 AES Unbalanced outputs, plus 2 MADI inputs via mini-BNC (DIN)
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XE-OP32-AA	32 Analog outputs
XE-OP32-AA-MADI	32 Analog outputs, plus 2 MADI inputs via mini-BNC (DIN)

#### Fiber Optic Modules

SFP3T13-2	Dual optical 3G/HD/SD-SDI SFP Transmitter, 1310 nm
SFP3R-2	Dual optical 3G/HD/SD-SDI SFP Receiver



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