EMR-288X288-A
High Density Modular Audio Router (AES, Analog, MADI, TimeCode, Data)

The EMR is a multi-format modular router that provides a high density solution without compromising functionality. The EMR provides a unified platform for routing digital audio, analog audio, MADI audio, data, and time code. The EMR uses a packet routing core that allows for highly dense applications and also provides the flexibility for expansion as demands grow.

A single 6RU frame can accommodate 288x288 AES, 288 data ports, 288x288 time code signals, or a mix of everything in between. Expansion beyond this is as easy as adding another frame. With two 6RU frames, the EMR can accommodate 576x576 AES signals with full redundancy.

The modular design of the EMR means that there are no limitations to the signal formats that can be added to the router, or limitations to the size at which it can be expanded to. Other products that can be combined with the EMR are video routing, master controllers, multi-viewers and more.

Configuration
The EMR allows any mix of formats within a frame. The inputs and outputs are scalable in blocks of 96 or 48 depending on the format. A system consists of the input stage, the crosspoint, and the output stage. Each input and output device is connected to the crosspoint through a proprietary TDM connection. It is the use of this connection that provides the flexibility for the system to scale and evolve with changing needs.

Scalability
The EMR can be scaled well beyond a single frame. A single crosspoint module can support up to 16 input modules and 16 output modules, allowing a system to scale to 1536x1536 AES. For larger requirements, multiple crosspoint modules can be combined to scale even further. There really is no limit to the range of the EMR.

Redundancy
Each input and output card in the EMR contains multiple TDM interfaces that allow connections to multiple crosspoints. Each input card provides multiple TDM outputs that can be used for redundant connections, and each output card provides multiple TDM inputs that can be setup to automatically failover if the primary connection fails. The redundancy structure of the EMR minimizes the chances of any failure to the system.

Control
Control of the EMR is via two redundant frame controllers. When combined with the EQX server, the EMR can be controlled using a wide range of control panels and interfaces. The EMR also provides a SNMP interface to control various configuration options.

System Integration
When combined with the EQX, the EMR provides the ability to route audio universally across various formats. Embedded audio from EQX video sources can be de-embedded and routed to AES, analog, or MADI destinations. The system also allows discrete audio sources from AES, analog or MADI to be routed to audio embedders on the EQX.   This unique system provides maximum flexibility for routing any audio source to any audio destination.

▶Features & Benefits

Audio Routing
• Support for unbalanced/balanced AES, analog, and MADI audio formats
• Input and output sample rate conversion
• Processing capabilities for per channel gain, inversion, mono-mixing and SoftSwitching (cross and v-fade)
• Advanced audio monitoring for loss, silence, over, phase and mono
• Unique HD video output with audio level display for all audio inputs

Port Data Routing
• Support for RS-232 and RS-422 devices (software selectable in banks of 12)
• Conversion between RS-232 and RS-422 devices
• Manual or automatic sensing of controlling and controlled devices
• Sony interface for detecting controlling or controlled devices

Time code Routing
• Decoding and encoding capabilities for advanced monitoring
• Handles shuffle speeds up to 70x

Advanced system control & interfacing
• Supports the full range of Quartz remote control panels
• Full VistaLINK® PRO command & control, SNMP & AVM
• Supports a wide selection of control protocols
• Ethernet, Serial RS-422/RS-232 connections
• Full integration with 3rd party automation systems

High availability, 24/7 design
• Full modular design
• All modules are hot swappable
• All components are front accessible
• Passive I/O
• External MI connection
• Redundant frame controller
• Redundant crosspoint
• Redundant power supply
• Comprehensive system monitoring bus
• VistaLINK® PRO SNMP monitoring of I/O modules

The Complete Solution Provider

▶Specifications

Configuration:

AES inputs	Selectable in blocks of 96
AES outputs	Selectable in blocks of 96
Analog inputs	Selectable in blocks of 48 (stereo)
Analog outputs	Selectable in blocks of 48 (stereo)
MADI inputs	Selectable in blocks of 16
MADI outputs	Selectable in blocks of 16
LTC inputs	Selectable in blocks of 96
LTC outputs	Selectable in blocks of 96
RS-232/422 ports	Selectable in blocks of 48 (RS-232 and RS-422 selectable in blocks of 12)

Audio Inputs - AES:

Sample Rates	32kHz, 44.1 kHz, 48kHz

Balanced Version

Standard	AES3-1992
Signal Level	0.2 - 7.0V p-p
Impedance	110Ω ±20%, transformer coupled
DC on Input	±50V
Connectors	D50 female

Unbalanced Version

Standard	SMPTE 276M
Impedance	75Ω
Return Loss	25dB, 0.1 - 6.0kHz
Connectors	DIN 1.0/2.3

Audio Outputs - AES

Sample Rates	32kHz, 44.1 kHz, 48kHz

Balanced Version

Signal Level	2.0 - 7.0V p-p
Impedance	110Ω, transformer coupled
DC Isolation	±50V
Rise/fall Time	3.5 - 10 ns
Connectors	D50 female

Unbalanced Version

Signal Level	1.0 V p-p ±50%,
Impedance	75Ω
Return Loss	25dB, 0.1 - 6.0kHz
Jitter	Conforms to ANSI S4.40-1992
Connectors	DIN 1.0/2.3

Analog Audio

Sampling Freq	:48kHz
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
Dynamic Range	24 bits
Connectors	D50 female

Analog to Digital Conversion

Sampling Freq	48kHz
Freq Response	±0.05dB
Input Impedance	12kΩ minimum
Signal Level	0dBfs to18dBu or 24dBu
Noise	-113dB A-weighted
THD+N	>95dB (typically > 98dB)
CMRR	>85dB @1kHz
Crosstalk	<-95dB
I/O Delay	0.85ms @ 48kHz
Connectors	D50 female

Digital to Analog Conversion

Sampling Freq	48kHz
Freq Response	±0.06dB
Output Impedance	400Ω
Signal Level	0dBfs to 18dBu or 24dBu
Noise	-115dB A-weighted
THD+N	>95dB (typically > 98dB)
DC Offset	>±30mV
Crosstalk	<-95dB
I/O Delay	1.3ms @ 48kHz
Dynamic Range	24 bits
Connectors	D50 female

Data Input Port

Type	RS-232 and RS-422, selectable in blocks of 12
Signal Level	0.2 - 7V p-p
Connectors	D50 female

Data Input Port

Type	RS-232 and RS-422, selectable in blocks of 12
Signal Level	2 - 7V p-p
Impedance	110Ω
Connectors	D50 female

LTC Reader

Standard	SMPTE 12M-1
Level	2 - 4V p-p, unbalanced or balanced
Speed	1/30th to 70x play speed, fwd and rev, machine dependent
Connectors	DIN 1.0/2.3 (unbalanced), D50 female (balanced)

LTC Generator

Standard	SMPTE 12M-1
Level	Adjustable, 0.5 - 4.5V p-p
Rise Time	40±10ms
Jitter	<2ms
Connectors	DIN 1.0/2.3 (unbalanced), D50 female (balanced)

Switching Reference

Reference Inputs	2x BNC, analog 525/625 or DARS
Impedance	75Ω terminating
Connectors	BNC per IEC 61169-8 Annex A

Control

Ethernet	2x RJ45
Serial RS-232/422	2x D9 female

Electrical

Supply	Auto ranging, 100 - 240VAC, 50/60Hz
Power Consumption	850 W
Redundant PSU	Optional

Physical

Height	10.5" (266mm)
Width	19.0" (483mm)
Depth	14.5" (368mm)
Module Capacity	15 single slot EMR series modules
Weight	Approx. 17.4 lbs (7.9kg) with 2 power supplies, no slots occupied

Approx. 32.0 lbs (14.5kg) with 2 power supplies, all slots occupied

▶Ordering Information

Configuration

EMR-9696-AESU	EMR 96x96 Digital Audio (Unbalanced) Router
EMR-9696-AESB	EMR 96x96 Digital Audio (Balanced) Router
EMR-4848-AA	EMR 48x48 Stereo Analog Audio Router
EMR-9696-LTC	EMR 96x96 Time Code Router
EMR-48-PR	EMR 48 Port Data Router

Each base system includes an EMX6-FR frame, a single power supply, a single frame controller, one input module, one output module (with the exception of the data router), and one crosspoint.

Ordering Options

+PS	Redundant Power Supply
+FC	Redundant Controller Module
+MADI	Additional MADI input on input card or additional MADI output on output card. (Applicable to AESU, AESB, and AA modules only)

Accessories

EMX6-FR	EMX 6RU Router Chassis with 15 slots
EMX3-FR	EMX 3RU Router Chassis with 5 slots
EMX-FC	EMX frame controller

EMR-IP96-AESU	96 Unbalanced AES inputs with 4 TDM outputs
EMR-IP96-AESB	96 Balanced AES inputs with 4 TDM outputs
EMR-IP48-AA	48 Analog stereo inputs with 4 TDM outputs
EMR-IP96-LTC	96 LTC inputs with 4 TDM outputs
3000MADI16-TDM4	16 MADI inputs with 4 TDM outputs

EMR-OP96-AESU	96 Unbalanced AES outputs with 4 TDM inputs
EMR-OP96-AESB	96 Balanced AES outputs with 4 TDM inputs
EMR-OP48-AA	48 Analog stereo outputs with 4 TDM inputs
EMR-OP96-LTC	96 LTC outputs with 4 TDM inputs
3000TDM4- MADI16	16 MADI outputs with 4 TDM inputs
EMR-PR48	48 ports with 4 TDM inputs and 4 TDM outputs
3000ADMX-16X16	16 TDM inputs and 16 TDM outputs

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