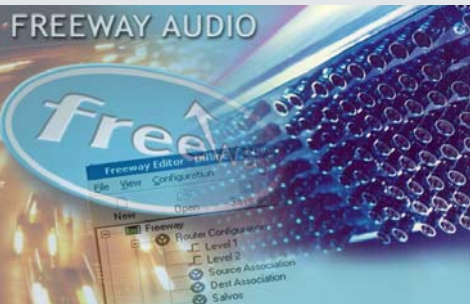


FREEWAY

Audio



Outstanding audio capabilities for AES Digital Audio and Stereo Analogue Audio.



FEATURES

- High packing density
- 64 x 64 in 3U
- 128 x 128 in 6U
- Reclocking and reframing architecture
- Optionally transparent for multi-standard 24kHz to 96kHz operation
- Balanced (50 way D) or unbalanced (BNC) interfaces

Stereo Analogue Audio

- High packing density
- 64 x 64 stereo in 3U
- 128 x 128 stereo in 6U
- 20 bit internal converters
- 24 bit digital core routing
- Channel swap for reversed stereo signals
- Assignable mono-mixing

Whilst the Freeway family offers exemplary performance and comprehensive facilities, its audio capabilities are deserving of special mention. At the heart of both the stereo analogue and the digital audio switching modules is a digital domain, therefore the analogue inputs are presented to internal A to D converters before being routed, and the outputs are fed via D to A converters. The primary advantage that this approach is the ability to format convert within the router itself, allowing analogue sources to be routed to digital destinations and vice versa. The space and cost savings generated by adopting a Freeway hybrid audio solution can be immense compared with those employing external modular converters.

AES Digital Audio

When operated as a reframing routing system for synchronous signals between 32kHz and 54kHz, Freeway's digital audio router ensures that all switching occurs at sample boundaries, removing clicks and disturbances caused by bitstream corruption. In transparent mode, signals between 24kHz and 96kHz may be supported. For flexible integration, routers may be configured with either balanced I/O using 50 way D connectors, or unbalanced I/O using BNCs. Operation in a mixed balanced environment is possible in groups of 16 inputs and outputs by employing different rear connector assemblies.

Stereo Analogue Audio

The analogue audio Freeway offers the benefits of a hybrid digital core, together with many facilities to enhance the routing operation. To compensate for external signal errors, any stereo analogue signal may be left/right swapped or routed as left to both or right to both. In addition, a mono derivative of any analogue source may be produced and sent to an analogue destination. Transformerless I/O circuits, providing level adjustment up to +24 dBu, combined with outputs that are indefinitely protected against short circuits ensure easy installation in any environment.

Technical Specification

AES Digital Audio Inputs

| | |
|-----------|--------------------------|
| Type | AES3-1992 |
| Impedance | 110Ω/optional 75Ω |
| Connector | 50 way 'D' type plug/BNC |

AES Digital Audio Outputs

| | |
|-----------|--------------------------|
| Type | AES3-1992 |
| Impedance | 110Ω/optional 75Ω |
| Connector | 50 way 'D' type plug/BNC |

Performance

Digital input - Digital output

| | |
|----------------------|---|
| Sample Rate | 24 to 96kHz (non re-clocking, non re-framing) 32 to 48kHz (re-clocking and re-framing) |
| Wordlength | 16 to 24 bit |
| Non Reclocking Perf | Transparent to all bi-phase mark data |
| Re-frame Performance | TBC's all inputs, outputs AES-11 compliant Channel status data re-written in this mode |

Analogue Inputs

| | |
|------------------|-------------------------|
| Type | Electronically balanced |
| Impedance | 10kΩ |
| Max Signal Level | +24dBu |
| Connector | 50 way 'D' type plug |

Analogue Outputs

| | |
|------------------|-------------------------|
| Type | Electronically balanced |
| Output Impedance | <110Ω(100Ω in analogue) |
| Max Output Level | +24dBu into 10k |
| Connector | 50 way 'D' type socket |

Analogue input - Analogue output

| | |
|-----------------------|--|
| Gain Stability | ±0.2dB/24 hours |
| Frequency Response | ±1dB 20Hz to 22kHz |
| THD + N | <0.1% at 1kHz, +18dBu <0.1% at 1kHz, 0dBu |
| Dynamic Range | >100dB (AES 17-1991) |
| Signal to Noise Ratio | >100dB |
| Crosstalk | <-90dB all hostile at 16kHz |

Mixed Analogue/Digital Performance

Digital input - Analogue output

| | |
|-----------------------|--|
| Input Wordlength | 16 to 24 bit |
| Converter | 20 bit, Delta Sigma |
| Gain Stability | ±0.2dB/24 hours |
| Frequency Response | ±1dB 20Hz to 22kHz |
| THD + N | <0.1% at 1kHz, +18dBu <0.1% at 1kHz, 0dBu |
| Dynamic Range | >100dB (AES17-1991) |
| Signal to Noise Ratio | >100dB |
| Crosstalk | <-90dB all hostile at 16kHz |

Analogue input - Digital output

| | |
|-------------------|---|
| Sample Rate | 48kHz (free running or locked to reference) |
| Output Wordlength | 20 bit |
| Converter | 20 bit, delta Sigma |
| Performance | Outputs AES-11 timing compliant |

Specifications subject to change

AES Digital Audio

| 16 channel input cards | Freeway 32 | Freeway 64 | Freeway 128 |
|------------------------|------------|------------|-------------|
| ✓ | ✓ | ✓ | ✓ |

Stereo Analogue Audio

| 16 channel input cards | Freeway 32 | Freeway 64 | Freeway 128 |
|------------------------|------------|------------|-------------|
| ✓ | ✓ | ✓ | ✓ |

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