A__line

WAN-CAPABLE AUDIO-OVER-IP NODES

ACCESS
AUDIO
ANYWHERE

A__line

WAN-CAPABLE AUDIO-OVER-IP NODES

A__LINE

WAN-CAPABLE AUDIO-OVER-IP NODES: BUILT FOR BROADCAST.

Whether in a studio next door, in a machine room rack on the other side of the campus or in a sports arena thousands of miles away — direct, flexible access to audio signals is indispensable for today's broadcast productions.

With Lawo's A__line nodes and their pristine sound, their fully standardized SMTPE ST2110 audio streaming capabilities and ST2022-7 class C streaming resilience, you are set for any production, from local to global scale.

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WAN-CAPABLE AUDIO-OVER-IP NODES

MANY PORTS. MORE OPTIONS.

Networked, pristine sounding and resilient. A__line nodes are designed to serve as IP audio stageboxes for mc² consoles, audio extensions for the V__matrix ecosystem, or as stand-alone IP audio gateways.

A__line features a compelling mix of audio interfacing options.

The discrete, Class-A microphone preamplifier design delivers a superb dynamic range of 119dB(A), ultra low noise at all gain levels and a perfectly flat frequency response. Versatile analog I/O can accommodate levels as high as +24dBu before clipping.

In an IP world, flexible AES3 audio interfacing is paramount. A__line delivers insertable, precise sample rate conversion for each AES3 input—a real life saver when clock domains need to be bridged.

And for multichannel baseband interfacing, A__line features bi-directional MADI access via SFP.

A__line nodes are built for mission-critical IP audio conversion. They use the SMPTE ST2110-30/31 and AES67 standards to transport uncompressed audio in real-time on Layer-3 IP networks. SMPTE ST2022-7 Seamless Protection Switching guarantees AoIP streaming using dual-redundant network interfaces to provide two discrete paths from device to network core. With ample receive buffer capacity to meet ST2022-7 class C, LAN and WAN network paths can be connected.

A__line provides true flexibility through a non-blocking routing matrix that allows any input to be routed to any output. Furthermore, the nodes simplify level control in a networked infrastructure by offering ppm metering for all Analog and AES3 interfaces.

Additionally, all A__line nodes feature on-board GPIO (except A__madi6) as well as PTP/Wordclock sync and conversion. And, of course, they come in a compact and sturdy housing with two redundant power inlets.

Interface Overview (multi-format models)						
A__stage48	16x MIC/Line In	16x Line Out	8x AES3 In	8x AES3 Out	1x MADI (redundant pair)	8/8 GPIO
A__stage64	32x MIC/Line In	16x Line Out	8x AES3 In	8x AES3 Out	1x MADI (redundant pair)	8/8 GPIO
A__stage80	32x MIC/Line In	32x Line Out	8x AES3 In	8x AES3 Out	1x MADI (redundant pair)	8/8 GPIO

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WAN-CAPABLE AUDIO-OVER-IP NODES

FLEXIBLE WITH EASE.

A__line provides audio connectivity in distributed locations. It allows to easily adapt to changing I/O requirements and to scale audio I/O capacity in a networked system — temporarily or permanently.

Based on an SMPTE ST2110-compliant IP audio backbone, A__line offers a granular audio format selection similar to the flexibility found in baseband modular I/O systems. The same backbone technology furthermore eliminates typical system design limitations like maximum channel count per frame, fixed channel capacity per device interconnect, or fixed overall system size.

Audio endpoints connected to A__line nodes can be seamlessly shared on the local or wide-area network. Thanks to the open, fully standardized streaming technology, interconnectivity to a wide variety of IP-enabled broadcast devices is possible. And it is, of course, brand-agnostic.

In combination with Lawo's VSM broadcast controller, A__line stageboxes provide an advanced set of networking options. VSM indeed manages A__line's audio-over-IP connections, I/O settings, internal routing matrix and GPIO for smooth integration into an overarching operational workflow.

Interface Overview (single-format models)						
A__mic 8	8x MIC/Line In	4x Line Out	—	—	—	8/8 GPIO
A__digital 64	—	—	32x AES3 In, SUB-D25, SRC	32x AES3 Out, SUB-D25	1x MADI (redundant pair)	8/8 GPIO
A__madi 6	—	—	—	—	6x MADI	—

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APPLICATIONS

ACCESS AUDIO ANYWHERE

ON SITE

Rough environmental conditions, frequent setup changes and quick turn-around times are typical for mobile productions. With rock-solid IP networking integration, A__line units are the right choice for outside broadcast, event and remote production scenarios.

AT HOME

Superb sound and flexible stagebox sh
important in broadcast studio deploym
renowned, pristine sound quality and s
the mc² console ecosystem, A__line is
studio environment.

aring are especially
ents. With Lawo's
eamless integration into
a smart choice for any

IN THE CORE

24/7/365 operation, direct connectivity to the video infrastructure, and interaction with automation… this is the typical job description for gear that runs the show in a system core. A__line's resilience and its open, standards-based IP streaming and control interfacing make it a safe fit for the core of any broadcast operation.

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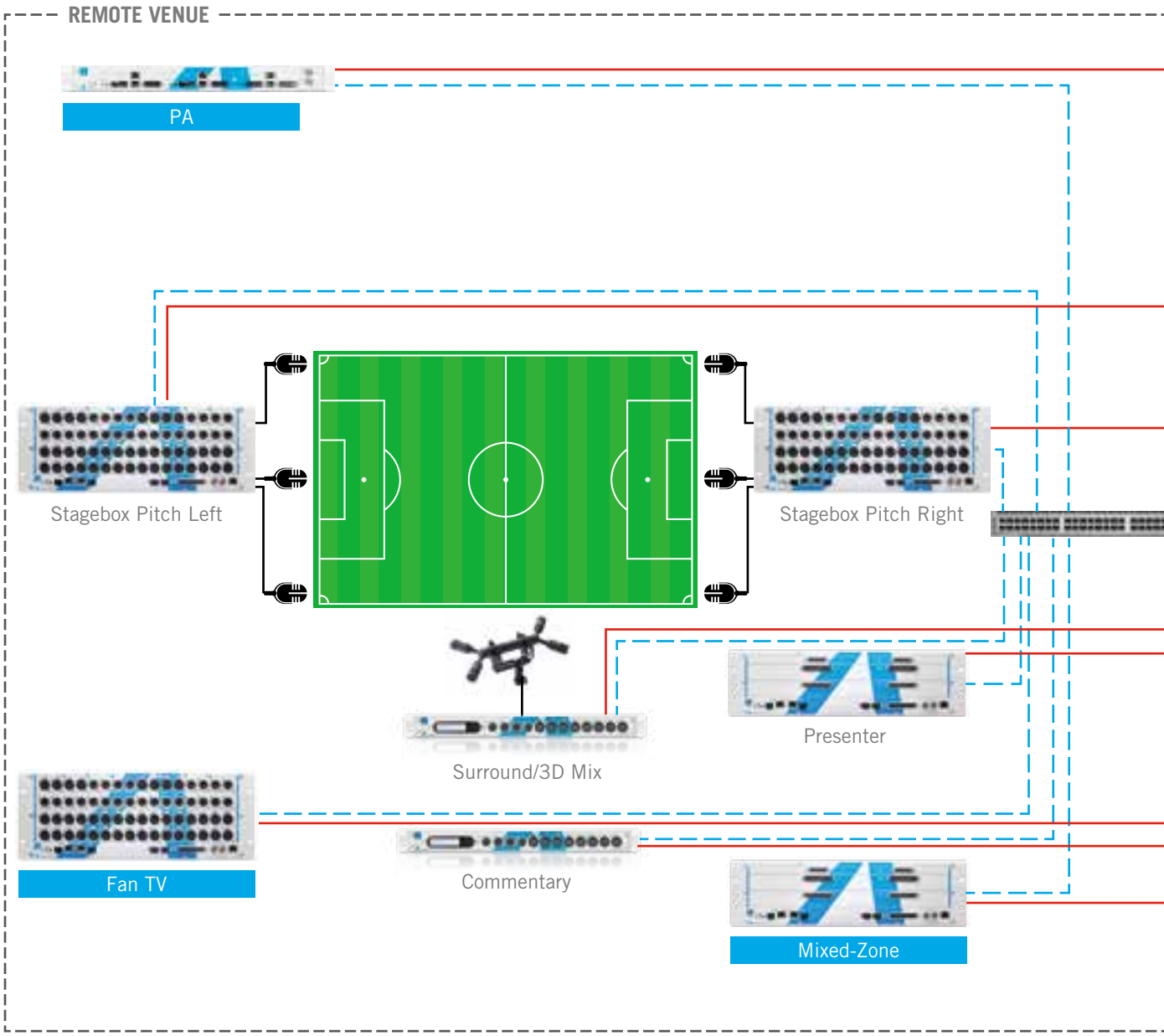
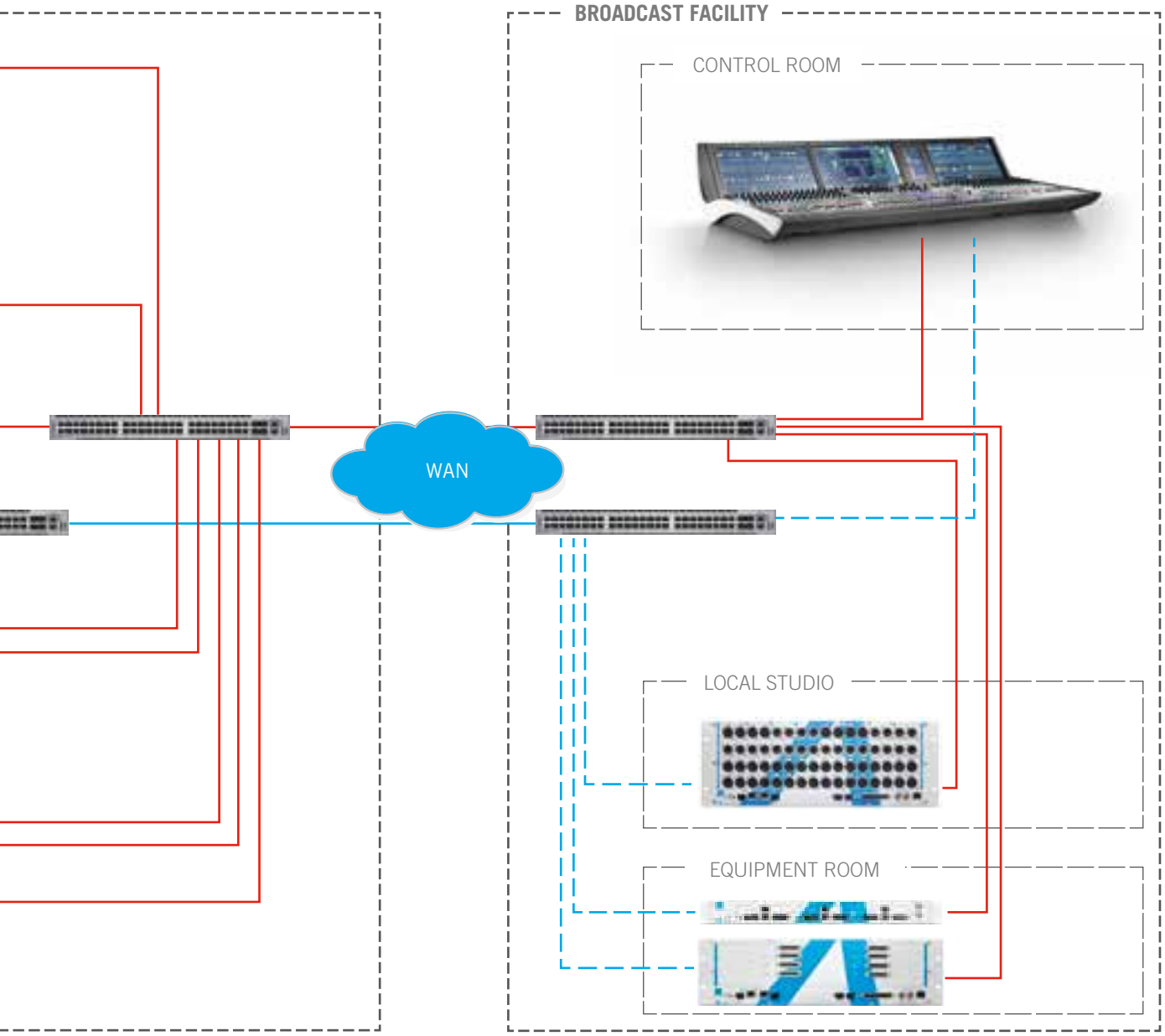
APPLICATIONS

SEAMLESS BROADCAST PRODUCTION

Lawo's A__line has been designed to be installed wherever an audio signal needs to be ingested or output. With a built-in 160ms RX buffer per audio channel and ST2022-7 class C redundancy protection, a WAN gateway is natively built into each A__line unit. This ensures seamless access to the audio streams — whether next door or from another continent.




BROADCAST FACILITY
CONTROL ROOM
WAN
LOCAL STUDIO
EQUIPMENT ROOM

A__line

SPECIFICATIONS

GENERAL

IP STREAMING

- Supported protocols: SMTPE ST2110-30/31, AES67, RAVENNA
- Stream Redundancy SMPTE ST2022-7 class C (copes with up 150ms redundant path differential)
- 128 audio RX channels with 128 RX stream receivers. Each RX audio channel features up to 160 ms of jitter buffer
- 128 audio TX channels in up to 128 TX streams. Stream formats from 1 to 64 channels supported

SYNC

- Sample rates: 44.1, 48, 88.2, 96kHz
- IEEE1588 PTPv2 master or slave operation
- Wordclock master or slave operation
- PTP <-> Wordclock conversion

SIGNAL PROCESSING

- Switchable Low-Cut Filter for 40/80Hz
- PPM metering for all analog and AES3 inputs and outputs
- 256/256 channel routing matrix

CONTROL & MANAGEMENT

- HTTP configuration web UI
- Ember+ control IP interface
- Integrated with mc²
- Integrated with VSM

A__stage 64

INTERFACES

- 32x switchable MIC/LINE inputs on XLR. Support for balanced and unbalanced sources through floating analog stage design and +48V phantom power. Dynamic range of 119dB(A) with maximum input level of +24 dBu
- 16x Line outputs on XLR. Floating balanced design supports balanced and unbalanced destinations. Max. output level +24dBu
- 8x AES3 inputs (stereo) on XLR with SRC (input sample rates: 28.4~100kHz)
- 8x AES3 outputs (stereo) on XLR
- 2x MADI ports (redundant pair) on SFP
- 2x Dual Media streaming & control ports (SFP/RJ45 100/1000Base-T Ethernet)
- 1x Management & control port (RJ45 100/1000 Base-T Ethernet)
- 1x Wordclock IN on BNC (75Ω)
- 1x Wordclock Out on BNC (75Ω)
- 8/8 GPIO opto/CMOS on SUB-D37

POWER

- 2x internal PSU (100~240 Volts)
- AC Input: (100~240 Volts/2.0~0.8 A)
- Power Consumption: 125 VA

ENVIRONMENTAL

- OPERATING TEMPERATURE: 0°C~+40°C (+32°F~+104°F)
- VENTILATION: Cooling by temperature-controlled, low-noise fan. Forced airflow sideways

MECHANICS

- DIMENSIONS (H x W x D):177 mm (4 RU) x 481mm (19”) x 230mm (9.05”)
- WEIGHT: 5.9kg (13 lbs)

A__stage48

INTERFACES

- 16x switchable MIC/LINE inputs on SUB-D37 Support for balanced and unbalanced sources through floating analog stage design and +48V phantom power. Dynamic range of 119dB(A) with maximum input level of +24 dBu
- 16x Line outputs on SUB-D37. Floating balanced design supports balanced and unbalanced destinations. Maximum output level +24 dBu
- 8x AES3 inputs (stereo) on SUB-D25 with SRC (input sample rates: 28.4~100kHz)
- 8x AES3 outputs (stereo) on SUB-D25
- 2x MADI ports (redundant pair) on SFP
- 2x Dual Media streaming & control ports (SFP/RJ45 100/1000Base-T Ethernet)
- 1x Management & control port (RJ45 100/1000 Base-T Ethernet)
- 1x Wordclock IN on BNC (75Ω)
- 1x Wordclock Out on BNC (75Ω)
- 8/8 GPIO opto/CMOS on SUB-D37

POWER

- 2x internal PSU (100~240 Volts)
- AC Input: (100~240 Volts/2.0~0.8 A)
- Power Consumption: 100 VA

ENVIRONMENTAL

- OPERATING TEMPERATURE: 0°C~+40°C (+32°F~+104°F)
- VENTILATION: Cooling by temperature-controlled, low-noise fan. Forced airflow sideways

MECHANICS

- DIMENSIONS (H x W x D):132.5mm (3 RU) x 481mm (19”) x 230mm (9.05”)
- WEIGHT: 5.2kg (11.5lbs)

A__stage80

INTERFACES

- 32x switchable MIC/LINE inputs on SUB-D37. Support for balanced and unbalanced sources through floating analog stage design and +48V phantom power. Dynamic range of 119dB(A) with maximum input level of +24 dBu
- 32x Line outputs on SUB-D37. Floating balanced design supports balanced and unbalanced destinations. Maximum output level +24 dBu
- 8x AES3 inputs (stereo) on SUB-D25 with SRC (input sample rates: 28.4~100kHz))
- 8x AES3 outputs (stereo) on SUB-D25
- 2x MADI ports (redundant pair) on SFP
- 2x Dual Media streaming & control ports (SFP/RJ45 100/1000Base-T Ethernet)
- 1x Management & control port (RJ45 100/1000 Base-T Ethernet)
- 1x Wordclock IN on BNC (75Ω)
- 1x Wordclock Out on BNC (75Ω)
- 8/8 GPIO opto/CMOS on SUB-D37

POWER

- 2x Inbuilt PSU (100~240 Volts)
- AC Input: (100~240 Volts/2.0~0.8 A)
- Power Consumption: 160 VA

ENVIRONMENTAL

- OPERATING TEMPERATURE: 0°C~+40°C (+32°F~+104°F)
- VENTILATION: Cooling by temperature-controlled, low-noise fan. Forced airflow sideways

MECHANICS

- DIMENSIONS (H x W x D):132.5mm (3 RU) x 481mm (19”) x 230mm (9.05”)
- WEIGHT: 6 kg (13.2 lbs)

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SPECIFICATIONS

GENERAL

IP STREAMING (A__madi6: per bridge)

- Supported protocols: SMTPE ST2110-30/31, AES67, RAVENNA
- Stream Redundancy: SMPTE ST2022-7 class C (copes with up 150ms redundant path differential)
- 64 RX audio channels with 64 RX stream receivers. Each RX audio channel supports up to 160ms of jitter buffer
- 64 TX audio channels in up to 64 TX streams. Streaming formats from 1 through 64 channels supported

SYNC

- Sample rates: 44.1, 48, 88.2, 96kHz
- IEEE1588 PTPv2 master or slave operation
- Wordclock master or slave operation
- PTP <-> Wordclock conversion

CONTROL & MANAGEMENT

- HTTP configuration web UI
- Ember+ control IP interface
- Integrated with mc² (A__mic8)
- Integrated with VSM

A__mic8

INTERFACES

- 8x switchable MIC/LINE inputs on XLR featuring remotely controlled 79dB gain range, 20dB PAD and +48V phantom power. Support for balanced and unbalanced sources through floating analog stage design. Dynamic Range of 119dB(A) with maximum input level of +24dBu
- 4x Line outputs on XLR. Floating balanced design supports balanced and unbalanced destinations. Maximum output level: +24dBu
- 2x RJ45 100/1000Base-T Ethernet ports for streaming and control
- 1x Wordclock IN on BNC (75Ω)
- 1x Wordclock OUT on BNC (75Ω)
- 8/8 GPIO opto/CMOS on DB-37

SIGNAL PROCESSING

- Switchable Low-Cut Filter for 40/80Hz
- PPM metering for all analog inputs and outputs
- 64/64 channel routing matrix

POWER

- Power-over-Ethernet (PoE) Class 3: 36~57V
- DC Input: 10~14V/1.0A (optional local PSU redundancy)
- Power Consumption 15W

ENVIRONMENTAL

- OPERATING TEMPERATURE: 0°C~+40°C (+32°F~+104°F)
- VENTILATION: Fanless passive cooling direction sideways

MECHANICS

- DIMENSIONS (H x W x D): 44mm (1 RU) x 481mm (19") x 210mm (8.27")
- WEIGHT: 2.1kg (4.6lbs)

A__digital64

INTERFACES

- 32x AES3 inputs (stereo) on SUB-D25 with SRC (input sample rates: 28.4~100kHz)
- 32x AES3 outputs (stereo) on SUB-D25.
- 2x MADI ports (redundant pair) on SFP
- 2x Dual Media streaming & control ports (SFP/RJ45 100/1000Base-T Ethernet)
- 1x Management & control port (RJ45 100/1000 Base-T Ethernet)
- 1x Wordclock IN on BNC (75Ω)
- 1x Wordclock Out on BNC (75Ω)
- 8/8 GPIO opto/CMOS on SUB-D37

SIGNAL PROCESSING

- Switchable Low-Cut Filter for 40/80Hz
- PPM metering for all inputs and outputs
- 256/256 channel routing matrix

POWER

- 2x internal PSU (100~240 Volts)
- AC Input: (100~240 Volts/2.0~0.8 A)
- Power Consumption: 100 VA

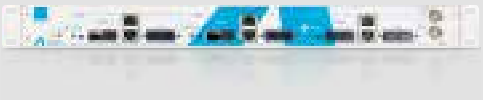
ENVIRONMENTAL

- OPERATING TEMPERATURE: 0°C~+40°C (+32°F~+104°F)
- VENTILATION: Cooling by temperature-controlled, low-noise fan. Forced airflow sideways

MECHANICS

- DIMENSIONS (H x W x D):132.5mm (3 RU) x 481mm (19") x 230mm (9.05")
- WEIGHT: 5.2kg (11.5lbs)

A__madi6



INTERFACES

Three independent MADI bridges, each featuring:

- 2x MADI ports on SFP
- 2x Dual Media RJ45/SFP 100/1000Base-T Ethernet ports for streaming and control
- 1x Wordclock IN on BNC (75Ω; bridge 1 only)
- 1x Wordclock OUT on BNC (75Ω; bridge 1 only)

SIGNAL PROCESSING

- Per bridge: 256/256 channel routing matrix

POWER

- 2x internal PSU (100~240 Volts)
- AC Input: (100~240 Volts/1.2~0.6 A)
- Power Consumption: 30 VA

ENVIRONMENTAL

- OPERATING TEMPERATURE: 0°C~+40°C (+32°F~+104°F)
- VENTILATION: Cooling by temperature-controlled fan. Forced airflow sideways

MECHANICS

- DIMENSIONS (H x W x D): 44 mm (1 RU) x 448 mm (19”) x 266mm (10.4”)
- WEIGHT: 3.1kg (6.83lbs)

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WAN-CAPABLE AUDIO-OVER-IP NODES

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