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 SMPTE ST2110 audio streaming capabilities and ST2022-7 class C streaming resilience, you are set for any production, from local to global scale.
A_line
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_madi 6) 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)**

<table>
<thead>
<tr>
<th>Model</th>
<th>MIC/Line In</th>
<th>Line Out</th>
<th>AES3 In</th>
<th>AES3 Out</th>
<th>MADI</th>
<th>GPIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_stage 48</td>
<td>16x MIC/Line In</td>
<td>16x Line Out</td>
<td>8x AES3 In</td>
<td>8x AES3 Out</td>
<td>1x MADI</td>
<td>8/8 GPIO</td>
</tr>
<tr>
<td>A_stage 64</td>
<td>32x MIC/Line In</td>
<td>16x Line Out</td>
<td>8x AES3 In</td>
<td>8x AES3 Out</td>
<td>1x MADI</td>
<td>8/8 GPIO</td>
</tr>
<tr>
<td>A_stage 80</td>
<td>32x MIC/Line In</td>
<td>32x Line Out</td>
<td>8x AES3 In</td>
<td>8x AES3 Out</td>
<td>1x MADI</td>
<td>8/8 GPIO</td>
</tr>
</tbody>
</table>
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)

<table>
<thead>
<tr>
<th>Model</th>
<th>MIC/Line In</th>
<th>Line Out</th>
<th>AES3 In</th>
<th>AES3 Out</th>
<th>MADI (redundant pair)</th>
<th>GPIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_mic8</td>
<td>8x MIC</td>
<td>4x Line</td>
<td>32x AES3</td>
<td>32x AES3</td>
<td>1x MADI</td>
<td>8/8</td>
</tr>
<tr>
<td>A_digital64</td>
<td>8x SUB-D25, SRC</td>
<td>32x AES3</td>
<td>32x AES3</td>
<td>1x MADI</td>
<td>(redundant pair)</td>
<td>8/8</td>
</tr>
<tr>
<td>A_madi6</td>
<td>6x MADI</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
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.

Superb sound and flexible stagebox sharing are especially important in broadcast studio deployments. With Lawo’s renowned, pristine sound quality and seamless integration into the mc² console ecosystem, A__line is a smart choice for any studio environment.

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.
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.
GENERAL

IP STREAMING
• Supported protocols: SMpte ST2110-30/31, AES67, RAVENNA
• Stream Redundancy SMpte ST2022-7 class C (copes with up to 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 c->c Wordclock conversion

SIGNAL PROCESSING
• Switchable Low-Cut Filter for 40kHz
• PPM metering for all analog and AES3 inputs and outputs
• 256x256 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: 6.9kg (13 lbs)

A__stage 48

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 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: 5.9kg (13 lbs)

A__stage 80

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)
A__line

SPECIFICATIONS

GENERAL

A__mic8

IP STREAMING (A__madi 6, per bridge)
- Supported protocols: SMPTPE ST2110-30/31, AES67, RAVENNA
- Stream Redundancy: SMPTPE ST2022-7 class C (copes with up 150ms redundant path differentially)
- 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 mc (A__mic8)
- Integrated with VSM

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/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 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)