

LA4X AMPLIFIED CONTROLLER



- 4,000 W @ 8 ohms with record hold times
- 4 in x 4 out architecture
- Universal SMPS with Power Factor Correction
- Milan-AVB audio networking



The LA4X is an amplified controller based on a 4-input by 4-output architecture and an exclusive green power module providing maximized efficiency. With LA4X, L-Acoustics® speakers can receive all the benefits of self-powered speakers, while keeping the versatility of the separated amplification approach.

The pool of four inputs and four amplification channels of the LA4X can be allocated flexibly to accommodate any combination of passive speaker enclosures. This approach is cost-effective for applications requiring a high count of independent sound sources such as stage monitors, L-ISA immersive deployments, and multichannel distributed systems. In high-end installation projects, the LA4X can drive active systems, up to K2, for maximum power headroom and the best possible performance. This approach brings maximum discretization with one transducer section per output channel and the independent DSP treatment of each loudspeaker enclosure, leveraging Autofilter to deliver even more uniform coverage across the audience space.

For applications requiring a high count of loudspeaker enclosures with optimized cost of amplification, the LA4X can efficiently operate as a conventional amplified controller driving speakers in parallel from its four amplification channels, with the added benefit of the 4 inputs when using passive loudspeaker enclosures.

GREEN POWER

LA4X is a “green” amplified controller that relies on a universal switched mode power supply suitable for mains from 90V to 265V. The SMPS features Power Factor Correction (PFC) which maximizes the amplifier efficiency and takes advantage of nearly 100% of the electrical power available with a very high tolerance to unstable mains. The PFC allows the LA4X to deliver as much power from a 10A line as from a 16A line on a conventional amplifier. This represents a reduction of the electrical power requirements (cable gauge, power conditioning, etc...) for substantial savings. The Class D amplification circuits ensure the LA4X energy-efficiency for minimal heat dissipation. LA4X delivers 4 x 1000W RMS power at 8 Ω or 4 Ω with record hold times. Besides the high raw RMS power rating at 8 Ω , the ability to deliver energy (power x hold time) yields the best performance from loudspeaker systems, especially in LF reproduction.

I/O

The four LA4X inputs are available in Milan-AVB, AES/EBU and analog. Four cascaded 24-bit and 96 kHz A/D converters at the front-end yield an impressive encoding dynamic of 128 dB. AES/EBU digital inputs operate with sample rate converters from 44.1 kHz to 192 kHz. Automatic fallback functions make the creation of redundant audio paths possible with constant delay and constant level.

DSP

All L-Acoustics amplified controllers integrate powerful DSP resources gathering loudspeaker management, protection for transducers and electronics, and a comprehensive set of tools for system adjustments to create a natural, transparent, and realistic sound experience. The LA4X DSP engine is divided into three blocks.

System alignment:

The first block provides tools to create a coherent system by setting optimal summation of each element:

- Gain, polarity and up to 1 second of delay for each output channel
- The Autoalign tool, available as part of the M1 measurement suite, enables quick and easy alignment of an entire system

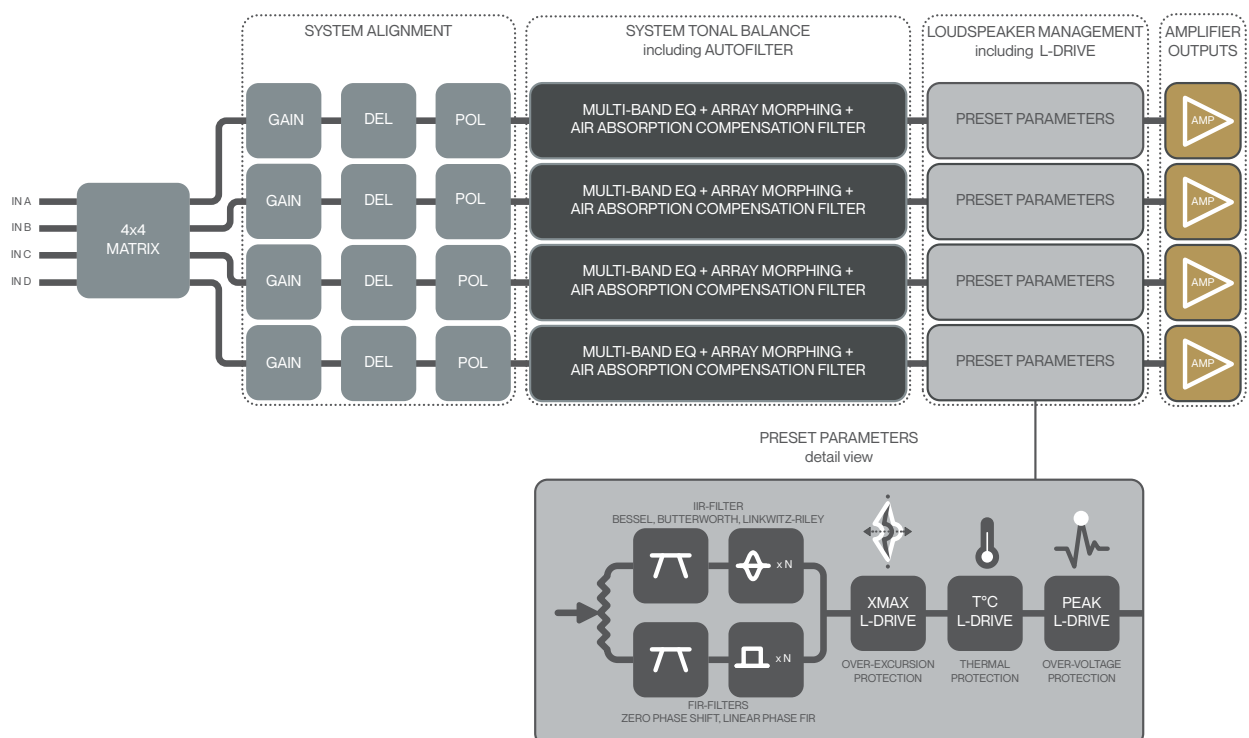
System tonal balance:

The second block provides advanced tools to maintain a consistent sonic signature between arrays in the system and from one venue to another:

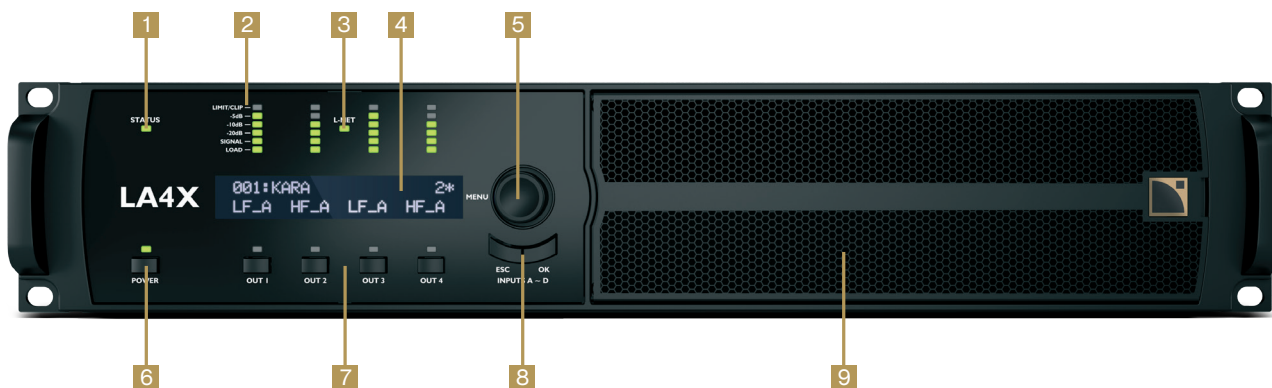
- The Autofilter tool is used to linearize the full frequency response of the entire array across the audience space on a per amplifier channel basis
- The adjustable IIR & linear phase FIR filters are used to fine-tune the system to a specific venue or configuration
- The Array Morphing tool is a simple and yet efficient means to adjust the sonic signature of line sources to meet the program material needs
- The Autoclimate and Air Compensation tools are used to adjust the system response in relation to atmospheric conditions while preserving driver resources

Loudspeaker management:

The third block is the system parameters that unify loudspeaker response and system protection through specific loudspeaker presets developed in-house. It integrates the proprietary L-DRIVE system, providing over-excursion, over-voltage and thermal protection, to maximize output power and minimize nonlinearities. L-DRIVE's optimum protection ensures durable performance and preserves sonic transparency in the linear and nonlinear domains.



USER INTERFACE



- 1 Status LED
- 2 LOAD/SIGNAL/LIMIT/CLIP LEDs
- 3 L-NET control network LED
- 4 2 x 24 char. LCD display
- 5 Navigation/ Edition rotary encoder
- 6 Power/Standby button and LED
- 7 Channel selection/mute keys
- 8 Menu keys
- 9 Anti-dust cover



- 10 powerCON™ 20 A power supply inlet
- 11 Fan grill
- 12 speakON™ output connectors
- 13 XLR analog or AES/EBU input and link connectors
- 14 XLR analog input and link connectors
- 15 etherCON™ 1 Gb/s Ethernet connectors

AMPLIFIED CONTROLLERS – THE RANGE

The latest generation of amplified controllers share similar architecture with extremely powerful DSP. The main differentiators between amplified controllers are gathered in the following table:

Specifications	LA1.16i	LA2Xi	LA4X	LA7.16(i)	LA12X
Touring / Install	Install	Install	Touring / Install	Touring / (i) Install	Touring / Install
In x Out	16 x 16*	4 x 4 / 4 x 3 / 4 x 2 / 4 x 1	4 x 4	16 x 16	4 x 4
Output power 12 dB Crest Factor, sine burst, 1 kHz, 2 ms	16 x 80 W (at 8 ohms) 16 x 160 W (at 4 ohms) 8* x 300 W (at 8 ohms)	4 x 190 W (at 16 ohms) 4 x 370 W (at 8 ohms) 4 x 710 W (at 4 ohms)	4 x 560 W (at 16 ohms) 4 x 1100 W (at 8 ohms) 4 x 1400 W (at 4 ohms)	16 x 700 W (at 16 ohms) 16 x 1300 W (at 8 ohms) 16 x 1100 W (at 4 ohms)	4 x 1400 W (at 8 ohms) 4 x 2600 W (at 4 ohms) 4 x 3300 W (at 2.7 ohms)
All channels loaded CEA-2006/490A, Sine burst, 1 kHz, 20 ms, THD < 1%, all channels loaded	16 x 80 W (at 8 ohms) 16 x 120 W (at 4 ohms) 8* x 230 W (at 8 ohms)	4 x 190 W (at 16 ohms) 4 x 360 W (at 8 ohms) 4 x 640 W (at 4 ohms)	4 x 1000 W (at 8 ohms) 4 x 1000 W (at 4 ohms)	16 x 580 W (at 16 ohms) 16 x 920 W (at 8 ohms) 16 x 1000 W (at 4 ohms)	4 x 1400 W (at 8 ohms) 4 x 2600 W (at 4 ohms) 4 x 3300 W (at 2.7 ohms)
Nominal current requirements for 200 - 240 V / 100 - 120 V	10 A / 20 A	10 A / 20 A	10 A / 20 A	16 A / 30 A	16 A / 30 A
Input channels	16 x AVB or AES67 1 x Analog / 2 x AES/EBU	4 x AVB or AES67 4 x Analog / 4 x AES/EBU	4 x AVB 4 x Analog / 4 x AES/EBU	16 x AVB (i: or AES67) 1 x Analog / 2 x AES/EBU	4 x AVB 4 x Analog / 4 x AES/EBU
Noise level (20 Hz - 20 kHz, 8 Ω, A-weighted, digital input)	< - 85 dBV	< - 77 dBV	< - 70 dBV	< - 79 dBV	< - 75 dBV
Front panel	LED's only	LED's only	LCD display with rotary encoder, power and mute keys	TFT Colour Touch Screen (i: LED's only)	LCD display with rotary encoder, power and mute keys
Height	1U	1U	2U	2U	2U
Weight	5.6 kg / 12.3 lb	4.4 kg / 9.70 lb	11.3 kg / 24.9 lb	15.8 kg / 34.8 lb (i: 14.5 kg / 32 lb)	14.5 kg / 32 lb

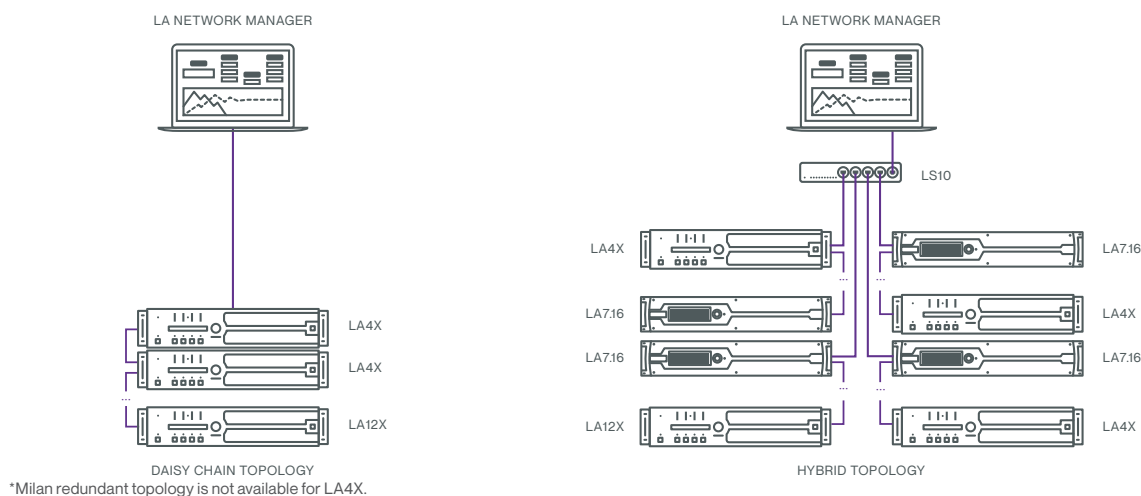
* Any odd/even pair of outputs can be bridged (BTL)

SOFTWARE AND NETWORK



LA Network Manager is designed to efficiently take users through the workflow process of Setup, Tuning, and Live. The tools required for each task are available on the dedicated page for each step of the control and supervision process. An advanced network engine allows automatic discovery of connected units, multiple-group assignment, real-time monitoring with event logging, and includes numerous productivity tools.

Our proprietary Ethernet based L-Net protocol is used to configure and monitor all L-Acoustics amplified controllers. Thanks to its high-speed data transfer capability of 1 Gbit/s, up to 253 units can be controlled and monitored in real-time by LA Network Manager, a proprietary software available for both Windows and Mac operating systems. All amplified controllers are fitted with two Ethernet ports allowing daisy-chain topologies, star topologies or a hybrid of the two, using standard CAT5e U/FTP cables.



AVB is the only protocol that guarantees deterministic and synchronous network behavior, ensuring on-time delivery of time-sensitive data. Milan is the application layer on top of AVB, independent from any private entity, that ensures seamless interoperability between any Milan-certified device. The Milan initiative developed agreed-upon standards for media stream format, media clocking, seamless redundancy, and more so that no IT expertise is required to set up a reliable and deterministic AVB network with Milan-certified devices.



Milan-AVB is an evolving, long-term, viable, and durable network developed by the industry for the industry.

Supported AV control solutions:



Control4

SAVANT

HTTP



SYSTEM MONITORING

L-Acoustics amplified controllers integrate system supervision functions that monitor amplifier and loudspeaker status, behavior, and continuity. The amplified controllers can monitor input and output signal integrity, levels, temperature, voltage values, and a power amplifier fault status. Any malfunction is reported in real-time within LA Network Manager control software or third-party control systems.

The Load Checker feature verifies the output cabling and validates that the preset loaded matches the expected load and number of enclosures in parallel.

LA4X monitors the output circuits using a combination of real-time load presence and periodic silent tests. Providing comprehensive status monitoring via the control network interfaces, including amplifier channel, and PSU status reporting. Options for automatic fallback and backup of input signals are also available.

ENCLOSURE DRIVE CAPACITY

Categories - Series	Reference	Max number of connections per channel*	Max number of enclosures per controller
Short throw X Series	X4i	4	16
	5XT	4	16
	X6i	2	8
	X8(i)	2	8
	X12	1	4
	X15 HiQ	1	2
Medium throw S Series	Soka	2	8
	Syva	1	4
	Syva Low	1	4
	Syva Sub	1	4
Medium throw A Series	A10(i) Wide/Focus	2	8
	A15(i) Wide/Focus	1	4
Long throw K Series** ***	KIVA II	2	8
	KARA II(i)	2	4
	K3(i)	1	2
	K2	1	1
Subwoofers**	SB6i	1	4
	SB10i	2	8
	SB15m	1	4
	SB18 (III)	1	4
	KS21(i)	1	4

* The number of connections corresponds either to the number of passive enclosures or the number of sections for active speakers.

** K1, K1-SB, KS28 and SB28 are not supported by LA4X

*** L Series is only supported by LA7.16(i) amplified controllers

L-CASE



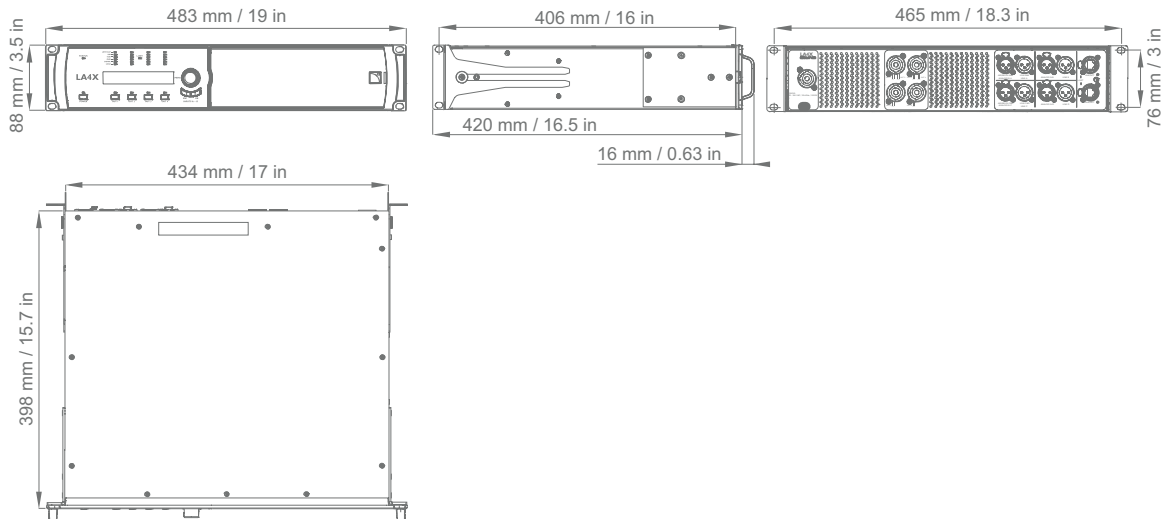
L-CASE is designed to offer a high level of protection against shocks, vibration, water and dust to 2U L-Acoustics electronics during their transport, storage and operation. It offers easy and comfortable handling.

Multiple L-CASE units can be individually identified and conveniently stacked on top of each other. Access to the electronics panels and cables is possible during operation.

L-CASE can be quickly and securely flown with a safety sling passing through the handle and connected to the electronics chassis.



DIMENSIONS



LA4X AMPLIFIED CONTROLLER



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For applications requiring a high count of loudspeaker enclosures with optimized cost of amplification, the LA4X can efficiently operate as a conventional amplified controller driving speakers in parallel from its four amplification channels, with the added benefit of the 4 inputs when using passive loudspeaker enclosures.

Packaged in a 2U chassis, LA4X integrates powerful DSP resources with built-in loudspeaker optimization tools and the proprietary L-DRIVE system to protect the loudspeakers and the amplified controller. In addition to analog and AES/EBU inputs, LA4X features Milan-AVB audio network connectivity.

SPECIFICATIONS

Amplification and power supply		
Output power, all channels loaded	4 channels at 4 Ω	4 channels at 8 Ω
Output power EIA (1% THD, 1kHz, all channels driven)	1000 W	1000 W
Amplification class	High efficiency class D	
Power supply model	Universal Switched Mode Power Supply (SMPS) with Power Factor Correction (PFC)	
Mains rating	100 V - 240 V - ±10%, 50-60 Hz	
Audio specifications		
Frequency response (20 Hz - 20 kHz, 8 Ω load, 60 W output power)	± 0.25 dB	
Distortion THD+N (20 Hz - 20 kHz, 8 Ω load, 60 W output power)	< 0.05%	
Output dynamic range (20 Hz - 20 kHz, 8 Ω, A-weigthed, Digital input)	> 110 dB	
Noise level (20 Hz - 20 kHz, 8 Ω, A-weigthed, Digital input)	< - 70 dBV	
DSP		
Digital Signal Processor (DSP)	SHARC 32-bit, floating point, 96 kHz sampling rate	
I/O routing	4 x 4 routing and summation	
Per output channel	Built-in EQ station with 8 IIR, 4 FIR EQ filters Array morphing (LF contour, zoom factor), Air absorption compensation filters Internal IIR and FIR EQ algorithms for speaker phase linearization and improved impulse responses Output delay from 0 to 1000 ms	
Technologies		
Loudspeaker Management	L-DRIVE advanced system protection (excursion, temperature and over-voltage)	
Circuits protection		
Mains and power supply	Over and under voltage / over temperature / overcurrent / inrush current protection	
Power output	Over current limiting / DC / short circuit / over temperature	
Inputs / Outputs		
AVB input	4 channels 48kHz / 96 kHz from 1 stream of up to 8 channels	
AES/EBU XLR inputs (shared with analog A & C)	4 channels (2 x AES/EBU, 44.1 - 192 kHz sampling rate) With active XLR link outputs and bypass relay	
Analog XLR inputs (shared with AES/EBU A & C)	4 channels with XLR link outputs	
Loudspeaker outputs	4 x 4-point speakON™	
Control and monitoring		
Network connection	Dual-port Ethernet Gigabit interface etherCON™ I/O	
Third-party control solutions	Q-SYS® / Crestron® / Control4® / Savant® / HTTP API	
Certification		
EN 54-16	This product may be utilized as component in the EN 54-16 certified VACIE of PAVA Facilities™	
Operating conditions		
Temperature	Room temperature from 0° C / 32° F to +50° C / 122° F	
Physical data		
Dimensions W x H x D	483 x 88 (2U) x 406 mm / 19 x 3.5 (2U) x 16 in	
Weight	11.3 kg / 24.9 lb	

