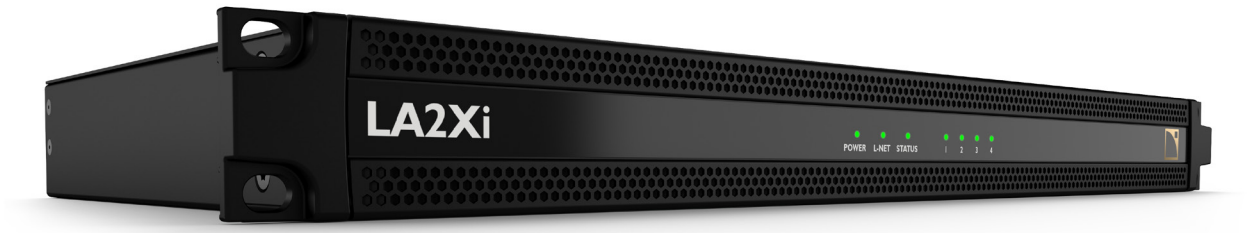
PRELIMINARY

LA2Xi AMPLIFIED CONTROLLER FOR INSTALL

- **4 x 4 architecture in AVB, AES, Analog**
- **Milan seamless redundancy**
- **Compact (1U)**
- **Matched power for small loudspeakers**
- **Reduced power for larger loudspeakers**
- **Bridge mode at full power for larger loudspeakers**



LA2Xi is a four-channel amplified controller dedicated to permanent installations. It is primarily designed to power L-Acoustics small-format loudspeakers. LA2Xi also supports larger loudspeakers in applications that require lower sound pressure levels (SPL) in a 4 x 4 single-ended mode or full SPL capacity in 4 x 3, 4 x 2 or 4 x 1 bridged modes.

Packaged in a 1U chassis for efficient use of rack space, LA2Xi incorporates features tailored for integration applications. Its streamlined and elegant front panel hides the same DSP engine as the flagship LA12X amplified controller, with features for loudspeaker management, protection and monitoring as well as a comprehensive set of tools for system adjustment and calibration. The Milan-certified LA2Xi offers AVB inputs with seamless redundancy as well as analog and AES inputs. The rear panel offers terminal connectors for AES and analog inputs, loudspeakers outputs as well as 4 GPIO and a 24 V DC backup power for the DSP card, enabling external control and monitoring, and ensuring fast recovery in case of power loss. LA2Xi is remotely controlled and monitored by LA Network Manager.

The flexible LA2Xi is ideal for background music systems in leisure venues, distributed fills, studio monitors and private auditorium systems.

I/O

LA2Xi provides four analog inputs, four AES inputs with active links and failsafe relay on terminal connectors and one AVB input stream with up to 8 channels on etherCON™. Automatic fallback functions from AVB to AES and AES to analog make the creation of redundant audio paths possible.

LA2Xi enables AVB seamless redundancy according to the Milan protocol. In case of connection loss on the primary network, audio will pass automatically on the secondary network without any audible artefact.

Routing inputs to outputs is done within LA Network Manager.

With a flexible output channel architecture, LA2Xi adapts to the needs of various applications, allowing for a 4, 3, 2 or 1 output channel configuration. The single-ended mode provides matched power for smaller loudspeakers and scaled power for larger loudspeakers, while the bridge mode offers maximum SPL capabilities for all supported loudspeakers.

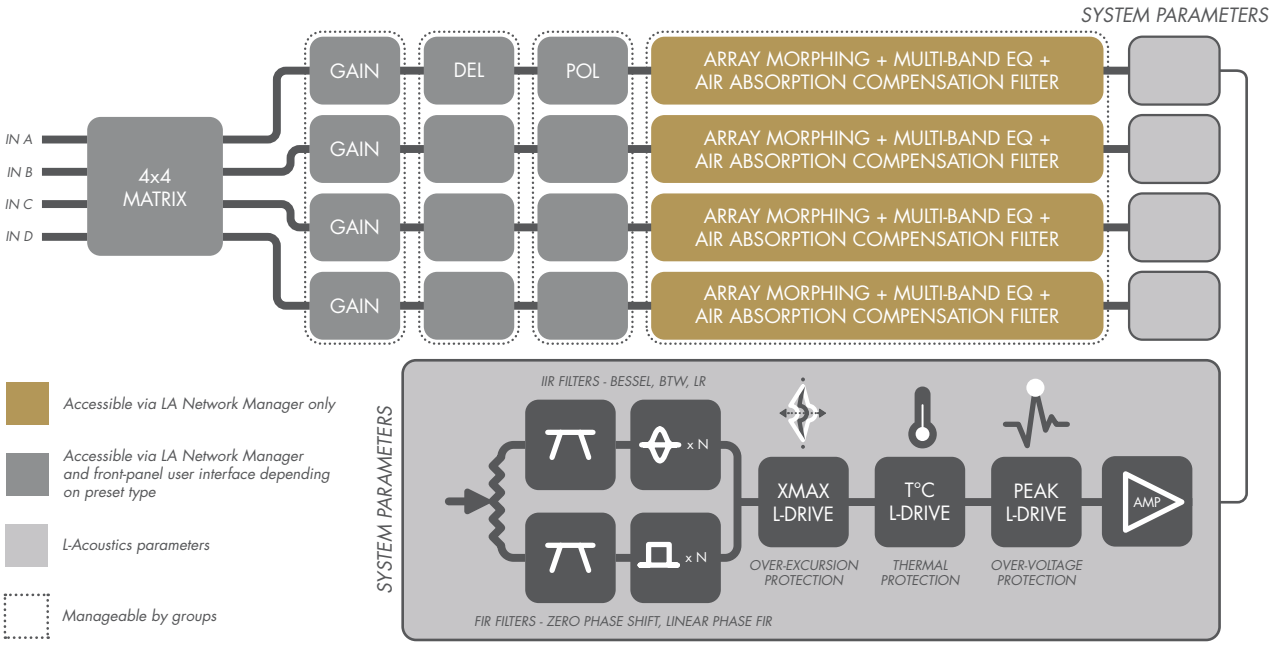
DSP

All L-Acoustics amplified controllers integrate powerful DSP resources gathering loudspeaker management, loudspeaker and amplified controller protection, and a comprehensive set of tools for system adjustments to create a natural, transparent and realistic sound experience. The 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 of the system. Gain, delay up to 1 second and polarity settings are available for each output channel.

System tonal balance: The second block provides advanced tools to maintain a consistent sonic signature between arrays in the system and a consistent sound from one venue to another. Array Morphing is used to adjust the tonal balance of line sources, regardless of the geometry of the array. A set of adjustable IIR and phase linear FIR filters are used to fine-tune the system to a specific venue or configuration. The Air Compensation tool is used to adjust the system response in regards to atmospheric conditions while preserving driver resources.

System performance: 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 protection system to maximize output power and minimize nonlinearities. L-DRIVE optimum protection ensures durable performance and preserves sonic transparency in the linear and nonlinear domains.



SYSTEM MONITORING

L-Acoustics amplified controllers integrate supervision functionalities to check amplifiers and loudspeakers status, behavior and continuity. The amplified controllers can monitor input and output signal integrity, levels, temperature and voltage values as well as a power amplifier failure. Any malfunction is reported in real-time within LA Network Manager control software.

A combination of real-time load presence tests with periodic silent tests monitors output circuits. The Load checker functionality verifies the output cabling and the number of enclosures in parallel and validates that the preset loaded matches the connected enclosures.

In case of input signal fault, the fallback modes automatically and instantaneously switch from the primary signal type over to the fallback inputs (AVB to AES and/or AES to Analog). The amplified controllers support dual network redundancy following the Milan protocol. Two AVB networks run simultaneously, and the amplified controllers switch seamlessly to the secondary network in case of failure on the primary network.

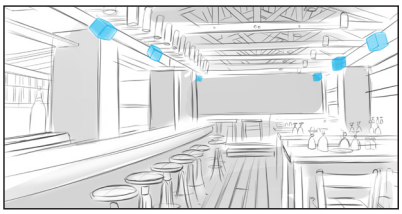
GREEN POWER

The latest generation of L-Acoustics amplified controllers relies on universal switch-mode power supplies (SMPS) for mains voltage from 100 V to 240 V +/- 10% (50 - 60 Hz). The SMPS is equipped with a power factor correction (PFC) to maximize the amplifier efficiency taking advantage of nearly 100% of the electrical power available with a very high tolerance to unstable mains. The combination of PFC and class D amplification leads to high energy-efficiency, low heat dissipation and electrical power requirements (cable gauge, power conditioning, etc...).

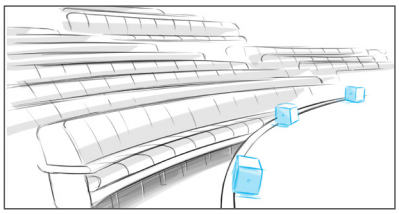
From a single 10 A line LA2Xi delivers 4 x 640 W RMS power at 4 Ω with record hold times. L-Acoustics amplified controllers are designed to hold high power over a long period of time, typically 200 ms, yielding the best performance to loudspeaker systems, especially in the low frequency domain.

APPLICATIONS

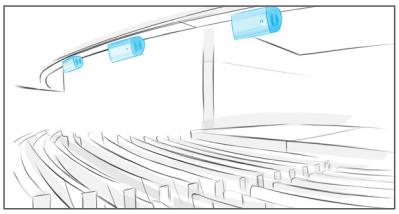
LA2Xi supports a wide variety of near-field installed applications, powering main or fill systems in theaters, studios, private auditoriums, conference halls and other leisure venues.



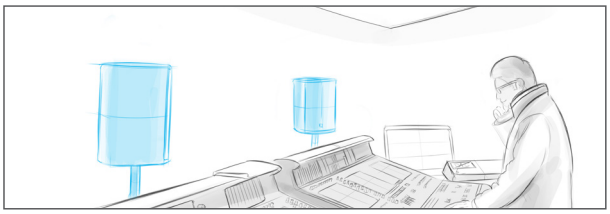
Background music in restaurant with X4i



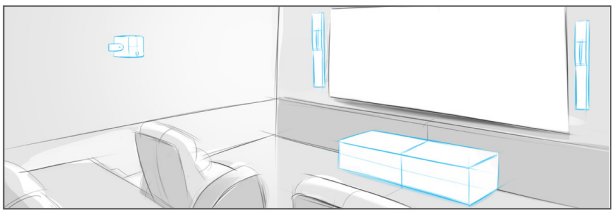
Front fills with 5XT



Under balcony fills with X8



Studio monitors with X8 - Bridged mode



Private auditorium with Syva and Syva Sub

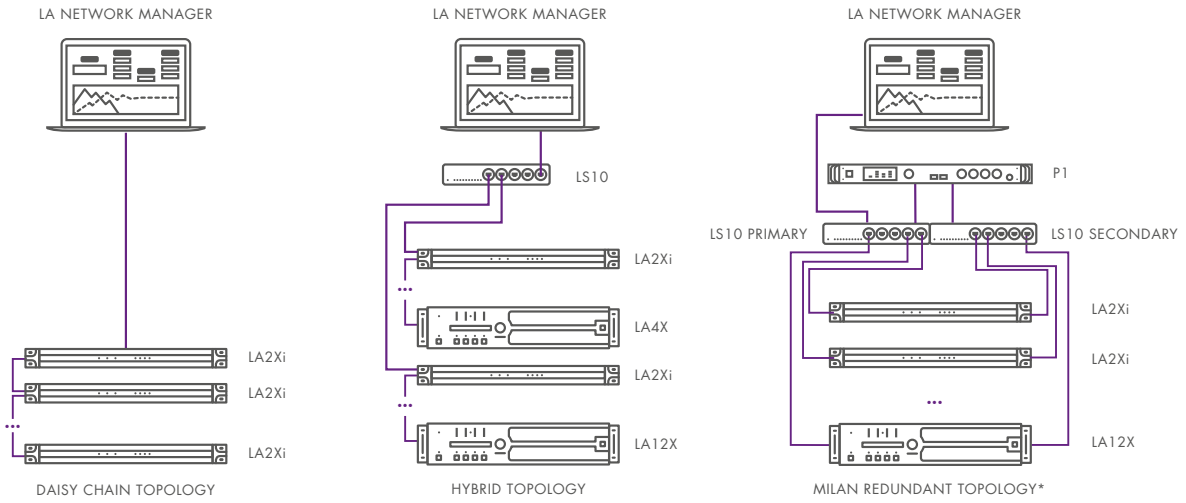
ENCLOSURE DRIVE CAPACITY

Categories - Series	Reference	Single ended mode		Bridge mode (Max SPL)
		nb of enclosure per LA2Xi	Max SPL reduction (dB)	nb of enclosure per LA2Xi
Short throw X Series	X4i	16	0	-
	5XT	16	0	-
	X8	8	- 4	2
	X12	4	- 5	2
	X15 HiQ	2	- 5	-
Medium throw S Series	Syva	4	- 7	2
	Syva - Syva Low	4	- 6	-
	Syva Low	4	- 6	-
	Syva Sub	4	- 5	2
Medium throw A Series	ARCS Wide/Focus	4	- 6	2
	A10(i) Wide/Focus	8	- 4	2
	A15(i) Wide/Focus	4	- 5	2
Long throw - K Series	KIVA II	8	- 5	4
	KARA II(i)	4	- 5	-
	K2	-	-	-
	K1	-	-	-
	K1-SB	-	-	-
Subwoofers	SB15m	4	- 6	2
	SB18(i/m)	4	- 5	2
	SB28	4	- 6	1
	KS21(i)	4	- 7	2
	KS28	4	- 7	1

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 in the dedicated page for each step of the control and supervision process. An advanced network engine allows automatic discovery of connected units, multiple-group assignation, real-time monitoring with event logging, and includes numerous productivity tools.

L-Acoustics amplified controllers are controlled using a proprietary Ethernet-based network L-NET. Thanks to its high-speed data transfer protocol of 1 Gbit/s, up to 253 units can be controlled and monitored in real-time by LA Network Manager, a proprietary software available on 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.



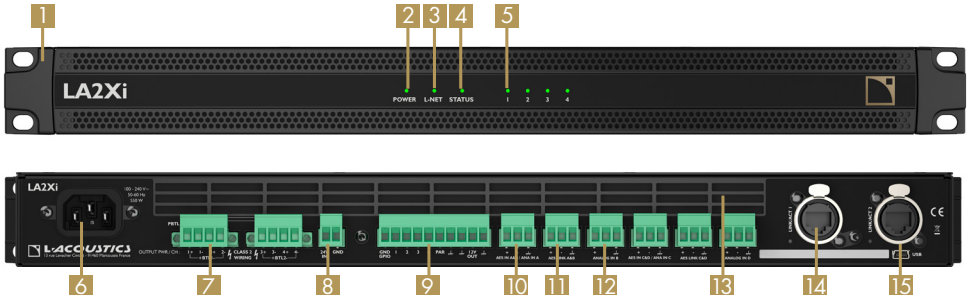
*Milan redundant topology is not available for LA4X.

Milan is the application layer based on AVB that ensures true interoperability between any Milan-certified devices. AVB is an evolution of the legacy Ethernet that was designed for media transport. AVB is the only protocol that guarantees a deterministic and synchronous network behaviour for the transmission of time-sensitive data. But AVB is a network layer technology that does not define an implementation strategy at the application layer. Milan takes care of that.

As an initiative of the Avnu alliance that was developed by leading members of the industry, including L-Acoustics, Milan is an open solution, independent from any private entity. The Milan initiative developed agreed-upon standards for media stream format, media clocking, seamless redundancy, and more so that no network expertise is required to set up a reliable and deterministic AVB network with Milan-certified devices.

Milan takes the burden of creating and managing IT networks and let users focus on creating amazing audio experiences.

USER INTERFACE

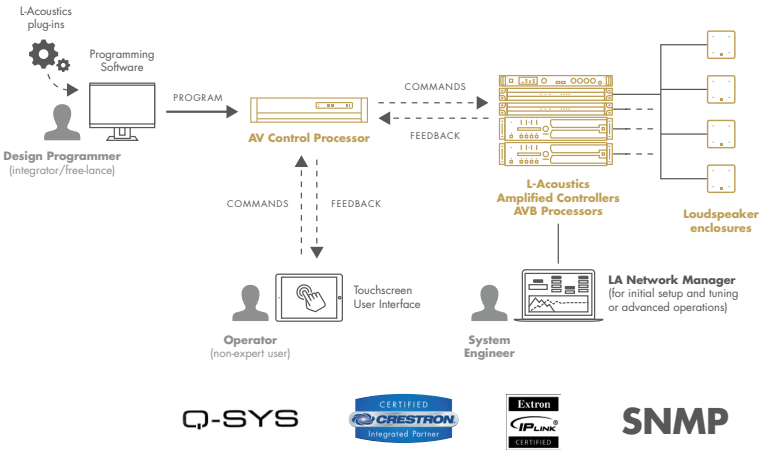


1 1U chassis
2 Power LED
3 L-NET control network LED
4 Status LED
5 Signal, limit, clip LEDs
6 IEC V-Lock compatible power supply inlet
7 Loudspeaker outputs on 4-point terminal blocks
8 24 V DC External DSP backup voltage input
9 General Purpose I/O (GPIO)
10 Analog or AES/EBU terminal input connector
11 AES/EBU terminal link connector
12 Analog terminal input connector
13 Fan grill
14 EtherCON 1 Gbit Ethernet connector
15 USB port for IP address configuration

THIRD PARTY INTEROPERABILITY

To facilitate the integration of L-Acoustics solution with media control systems, several modules and plug-ins have been developed to interface with popular control environments. Interoperability between L-Acoustics ecosystem and media control systems allows to centralize the management of L-Acoustics electronic devices with other types of devices through a customized interface and to monitor the PA system for voice alarm continuous capability.

L-Acoustics developed plug-ins and modules for integration with the following manufacturer's control systems:



AMPLIFIED CONTROLLERS – THE RANGE

All members of 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	LA2Xi	LA4X	LA12X
Install / Touring	Install	Install / Touring	Install / Touring
In x Out	4 x 4/ 4 x 3 / 4 x 2 / 4 x 1	4 x 4	4 x 4
Output power **Sine burst, 1 kHz, 200 ms, < 1% THD, all channels loaded**	4 x 190 W RMS (at 16 ohms) 4 x 360 W RMS (at 8 ohms) 4 x 640 W RMS (at 4 ohms)	4 x 1000 W RMS (at 8 ohms) 4 x 1000 W RMS (at 4 ohms)	4 x 1400 W RMS (at 8 ohms) 4 x 2600 W RMS (at 4 ohms) 4 x 3300 W RMS (at 2.7 ohms)
Nominal power requirements for 200 - 240 V	10 A	10 A	16 A
Nominal power requirements for 100 - 120 V	20 A	20 A	30 A
input channels	4 x Analog / 4 x AES / 4 x AVB*	4 x Analog / 4 x AES / 4 x AVB*	4 x Analog / 4 x AES / 4 x AVB*
Noise level (20 Hz - 20 kHz, 8 Ω, A-weighted, digital input)	< - 81 dBV	< - 71 dBV	< - 72 dBV
Front panel	No screen, no buttons	LCD display with rotary encoder, power and mute keys	LCD display with rotary encoder, power and mute keys
Height	1U	2U	2U
Weight	4.40 kg / 9.70 lb	11.3 kg / 24.9 lb	14.5 kg / 32 lb

* 4 channels from one AVB stream of up to 8 channels

PRELIMINARY

LA2Xi AMPLIFIED CONTROLLER

LA2Xi is a four-channel amplified controller dedicated to permanent installations. Designed to match the power of small-format loudspeakers, LA2Xi can also be used to support larger loudspeakers at lower SPL capability (4 x 4 single-ended mode) or at full SPL capability (4 x 3, 4 x 2 or 4 x 1 bridge mode).

The streamlined and elegant 1U front panel hides a powerful DSP engine with features for loudspeaker management, protection and monitoring as well as a comprehensive set of tools for system adjustment and calibration. In addition to analog and AES, LA2Xi integrates AVB signal inputs with Milan seamless network redundancy. Four GPIO and a 24 V DC backup power for the DSP card offer external control and improved reliability. The flexible LA2Xi is ideal for background music systems in leisure venues, distributed fills, studio monitors and private auditorium systems.

SPECIFICATIONS

Amplification and power supply					
Amplification class	High efficiency class D				
Output power, all channels loaded	4 channels at 4 Ω	4 channels at 8 Ω	4 channels at 16 Ω	2 channels at 8 Ω	1 channel at 4 Ω
Peak output power 12 dB Crest Factor, Sine burst, 1 kHz, 2 ms	710 W	370 W	190 W	1400 W	2750 W
Output power 200 ms, Sine burst, 1 kHz, 200 ms, < 1 % THD	640 W	360 W	190 W	1260 W	2550 W
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 - 10 kHz, 8 Ω load, 60 W output power)	< 0.1%				
Output dynamic range (20 Hz - 20 kHz, 8 Ω, A-weigthed, Digital input)	> 112 dB				
Noise level (20 Hz - 20 kHz, 8 Ω, A-weighted, Digital input)	< - 79 dBV				
DSP					
Digital Signal Processor (DSP)	Gen.4 Dual SHARC 32-bit, floating point, 96 kHz sampling rate				
I/O routing	4x4 routing and summation matrix				
Per output channel	Built-in EQ station with 8 IIR, 3 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				
	L-DRIVE advanced system protection (excursion, temperature and over-voltage)				
	Output delay from 0 to 1000 ms				
Circuits protection					
Mains and power supply	Over and under voltage / over temperature / overcurrent / inrush current protection				
Power outputs	Over current limiting / DC / short circuit / over temperature				
Inputs / Outputs					
Analog input	4 channels, 3-pin Phoenix Euroblock				
AES / EBU input	4 channels (2xAES3), 3-pin Phoenix Euroblock (44.1 - 192 kHz sampling rate) With active link and bypass relay				
AVB input with support of Milan seamless dual networking	4 channels 48kHz / 96 kHz from 1 stream of up to 8 channels				
Loudspeaker output	2 x 4-pin Phoenix Euroblock				
Remote control and monitoring					
Network connection	Dual-port Ethernet Gigabit interface				
General Purpose Inputs / Outputs (GPIO)	4 GPIO, isolated optocoupler inputs, isolated relays contacts				
External DSP backup voltage input	24 V DC, 2-pin Phoenix Euroblock				
Third-party management solutions	QSC® / SNMP / Extron® / Crestron®				
Operating conditions					
Temperature	Room temperature from 0° C / 32° F to +50° C / 122° F				
Physical data					
Height	1U				
Weight	4.6 kg / 10 lb