

Voice Alarm system integration

technical bulletin - version 3.0



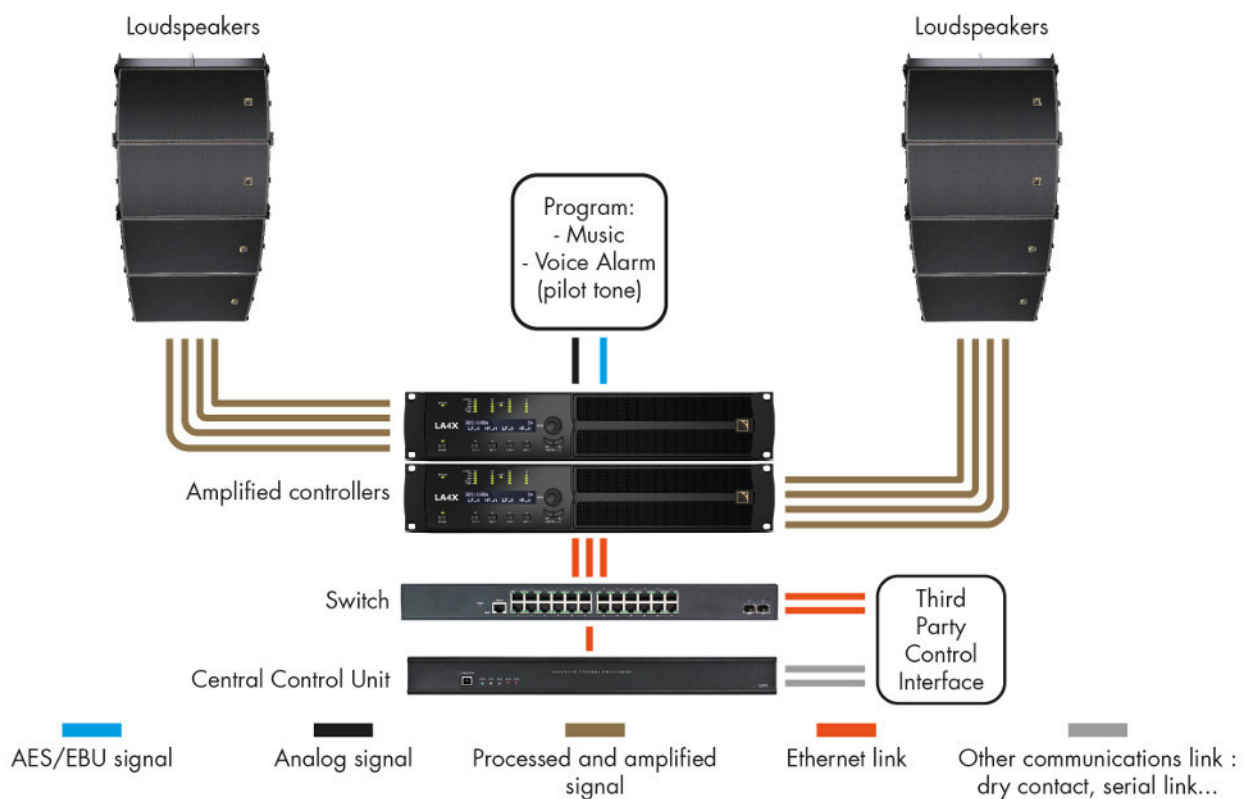
Overview of LA4X and LA12X features for integration with Voice Alarm systems

General layout

Comprehensive monitoring for integration of an L-Acoustics system with a Voice Alarm system requires:

- a third-party Central Control Unit (CCU, e.g. Crestron, Extron, etc.) supporting the L-Acoustics L-COM protocol, or SNMP
- on-site calibration of nominal system conditions and failure state conditions

General layout



Crestron is a trademark or registered trademark of Crestron Electronics, Inc. in the United States, other countries or both.
Extron is a registered trademark of Extron Electronics.

System monitoring

System monitoring provided by LA4X and LA12X amplified controllers.

function	LA4X	LA12X
Real-time load presence and short-circuit detection on output channel	Yes*	Yes*
Periodic silent test of output circuit	Yes	Yes
AES/EBU input signal presence and error detection	Yes	Yes
Pilot tone detection on active inputs	Yes	Yes
Power amplifier failure detection	Yes	Yes
Power supply failure detection	Ext**	Yes

* on condition that output delivers at least 1 W / 4 Ω

** to be periodically tested by Central Control Unit

Ethernet control network

Ethernet control network for LA4X and LA12X amplified controllers.

	LA4X	LA12X
type of network	Local Area Network with up to 253 amplified controllers	
ethernet ports	two, up to 1 Gb/s	
cabling	CAT5e cable (or higher), max length = 100 m *, RJ45 connectors	

* Typical. May be extended using third-party fiber optic interfaces.

Power statuses and cascaded links

Consequences of power statuses on cascaded links.

amplified controller	link	powered on and idle	standby	powered off	power cord removed
LA4X	ethernet	refreshed	refreshed	refreshed*	interrupted
	AES/EBU	refreshed	ok	ok	ok
	analog	ok	ok	ok	ok
LA12X	ethernet	refreshed	refreshed	refreshed*	interrupted
	AES/EBU	refreshed	ok	ok	ok
	analog	ok	ok	ok	ok

* powered off LA4X or LA12X does not use any IP address and cannot be controlled remotely

Signal inputs

Signal inputs of LA4X and LA12X amplified controllers.

	LA4X	LA12X
analog audio inputs	4 balanced analog inputs line level up to +22 dBu 4 female XLR connectors 4 male XLR for passive link	
digital audio inputs	2 AES/EBU input (110 Ω) 2 female XLR, shared with analog inputs 1 and 3 2 male XLR for active link with failover relay, shared with analog links 1 and 3	
simultaneously active inputs	up to 4, analog or digital, selection by pair	
input mixing	yes: by pair, sum or difference of the channels of the active inputs	
analog cabling	recommended maximum length: up to 100 m (typical) recommended maximum number of cascaded links: 22	
digital cabling	tested max. length: 305m (at Fs = 48 kHz) with selected AES/EBU rated cables recommended maximum number of cascaded links: 22	

Automatic fallback

The AES/EBU automatic fallback feature allows for input signal redundancy where AES/EBU is used as primary signal. In case of error, the input mode instantaneously switches over to the fallback input (less than 135 ms of audio interruption).

automatic fallback mode (built-in)	LA4X	LA12X
AES/EBU to analog	yes, 2 channels	
AES/EBU to AES/EBU	yes, 2 channels	

Alternative modes where analog is used as a primary signal may be implemented by integrators based on pilot tone detection and input selection management by Central Control Unit:

programmable fallback mode (managed by CCU)	LA4X	LA12X
analog to AES/EBU	yes, 2 channels	
analog to analog	yes, 2 channels	

Status change time

	LA4X	LA12X
OFF to ON	5 s	9 s
STANDBY to ON	5 s	5 s
ON to STANDBY	< 0.5 s	< 0.5 s
ON to OFF	< 0.5 s	< 0.5 s

Power and UPS sizing

This table presents the power consumption for each amplified controller for a typical musical program in nominal conditions, in idle mode, and in standby mode, for various nominal loads.

The calculator is available at www.l-acoustics.com/installation-calculation-tools-137.html.

		1/8 max power (-9dB)			idle		standby	
amp	4 ch. loaded at	current draw (A)	thermal load (W)	thermal load (BTU/hr)	current draw (A)	thermal load (W)	current draw (A)	thermal load (W)
LA4X	4 or 8 Ω	3	250	853	0.3	60	0.1	10
	2.7 Ω	11.5	750	2559	1	160	0.6	10
LA12X	4 Ω	8.1	550	1877	1	160	0.6	10
	8 Ω	4.8	350	1194	1	160	0.6	10

Third-party control systems

Functions available from third-party control systems using L-COM protocol or SNMP.

status information and monitoring (read only)	commands (write)
<ul style="list-style-type: none"> – amplified type – current operating mode: standby, active – full reporting of errors – current input mode and status, fallback status – current preset name, family, output names – name of next available preset – signal level / limit / clip – front panel keys locked/unlocked 	<ul style="list-style-type: none"> – standby / wake-up – input mode selection – preset load – mute/unmute, output gain control – lock/unlock front panel keys – output gain

Settings protection

In order to ensure the integrity of a fire alarm system, access to the amplified controllers parameters has to be restricted. These parameters can be protected independently from:

- LA Network Manager and amplified controller front panel access
- third-party control system application using a specifically determined access policy

Settings Protection is based on three levels of users.

When Settings Protection is enabled by the Administrator:

only the Administrator can	the Advanced User can (with the PIN code)	the General User can
<ul style="list-style-type: none"> – load non-authorized Session files – delete a user preset – reset Units to factory default parameters – update firmware – use quick access to gain from front panel 	<ul style="list-style-type: none"> – load a factory preset – store a preset – modify any group parameter – modify a preset parameter – modify the IP address of a Unit 	<ul style="list-style-type: none"> – load authorized Session files – restore Session – load user presets – select the input mode – mute/solo – set in standby / wake-up

Access rights have been defined by L-Acoustics to meet the needs of 90% of the fixed installation applications. This policy cannot be modified by the Administrator.

For any specific need please contact L-Acoustics Application Team (applications@l-acoustics.com).

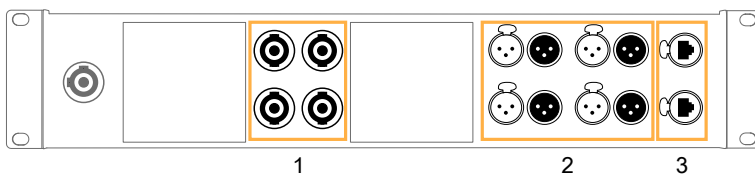
Appendix

Rear connection panels

The amplified controller's rear side features three panels for audio and network cabling:

- a speaker panel (1) to connect the loudspeakers
- a signal panel (2) to connect the analog and/or digital (AES/EBU or S/PDIF) audio sources and link the signals to another amplified controller
- an L-NET panel (3) to connect to a network and be remotely controlled by LA Network Manager

LA4X audio and network connection panels



LA12X audio and network connection panels

