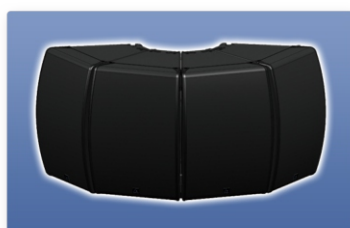


# LOTUSLINE

France  
2025



The key to Sound



The key to Sound

## History & Innovation

At the end of 2005, a professional range of high quality loudspeakers was born – LOTUSLINE.

- 2006** LOTUSLINE has applied three proprietary technologies in three series:
- 2007** SIC™ technology in Lotusline SB series  
MVC™ technology in Lotusline MA series  
SHM™ collinear waveguide technology in Lotusline LA system
- 2009** LOTUSLINE acquired its own compiler software EASE Focus, called LA system.
- 2011** LOTUSLINE applied a new proprietary technology CLS™ (Coaxial line source) technology.
- 2013** LOTUSLINE has licensed EASE Focus 2 and applied a new proprietary technology, SSA™ (Spherical source array) SSA based cabinets are arrayable asymmetrical elements to be used unitary or coupled up to full hemispherical perfectly coherent point source.
- 2016** LOTUSLINE first proposed the concept of spherical waves. This technology was first applied to the SSA series.
- 2021** LOTUSLINE officially authorized the establishment of the Asia-Pacific Operations Center in Guangzhou, China. This operations center works closely with Europe to become a big family.
- 2024** LOTUSLINE first proposed the concept of precise adjustable radiation and adaptive adjustment , to fully prepare for the innovative application of AI in the field of professional acoustics in the future

LOTUSLINE systems are state of the art innovative products and offer the sound designer, sophisticated but easy to use electro acoustic tools, which are the key to sound.

## Contact & Support

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Forget the system and enjoy the sound !

## Coaxial Technology

Classical arrangement of two way loudspeakers uses separate transducers positioned on a common front baffle. In the transition frequency region, due to the difference of path length between the listening point and the two separate sources, spatial frequency answer cannot be homogenous. This problem is particularly sensitive for short field listening such as stage monitoring and small venues.

By superposing both of the two sources, coaxial technology eliminates the problem and creates a perfect homogenous acoustic field on all the speaker coverage as well horizontally as vertically.

The advantages of the coaxial approach include: single point source radiation, total wavefront coherency at all frequencies and superimposed LF/HF dispersion characteristics that are free of polar lobbing effects typical of traditional horn and woofer combinations. The net result is natural, studio monitor level sound quality that is ideal for proximity use.

Lotusline MA & MQ series include two different coaxial arrangements.

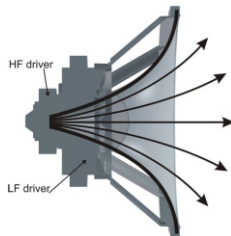
The first one uses the main driver cone as horn load for the HF driver.

This arrangement offer the largest possible conical coherent coverage and is used in MA8v2, MA10v2, MA12v2 and MA15v2.

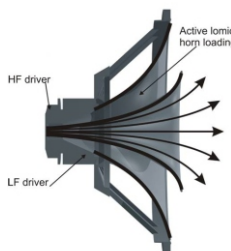
The second one uses a separate horn for the HF driver.

This arrangement offers smaller aperture angles and higher lomid efficiency by loading the main cone in its throat region. We call it "active" horn loading.

This arrangement is used in MQ60.



Standard coaxial arrangement



Coaxial active horn arrangement

## Line Source Technology

All line arrays are not line sources ! What's the difference ?

A true line source array generate an homogenous acoustic field on all its coverage area, in all its frequency range and is free of interference problems. The net result is the same sound from near field to far field.

The conception of a true line source encounters a lot of technical problems the designer has to solve. The main one is the fusion of all individual sources in only one virtual line source in order to generate on all the frequency range a perfect free of lobbing effects toroidal wavefront. If the solution is evident for low frequencies, this is not the same piece of cake for high ones. The acoustical size of a sound source is close to the wavelength of the generated signal. At 100Hz, the wavelength is 3.4m, so, two speakers distant of 1.2m (half the wavelength) create a perfect coherent source. At 1kHz, the wavelength is only 34cm and these two speakers are no more a coherent source and generate interferences. At 10kHz, the wavelength is 3.4cm and there are no speakers able to realize the performance to be smaller than 1.7cm in the real professional sound reinforcement world.

Many improvements have been made in line source technology, but the physical remain the same.

SHM™ and SIC™, Lotusline proprietary technologies applied in LA series, are fundamental improvements in professional loudspeaker design.

By respecting line source rules and all other acoustic laws, Lotusline LA series are true line source line arrays with a real behaviour close to the mathematical theory.

## SHM™ Technology

**SHM™** (Single Horn loaded Midrange) improve dramatically midrange bandwidth and efficiency by avoiding multiple components dispersion and using collinear mid and hi frequency horns layout.

First line array uses mid drivers on plane baffle. Small improvements in efficiency have been made by using compression load midrange directly in the front common waveguide, but creating irregularities in frequency response, and dispersion in characteristics due to the multiplication of components. Actually, coaxial midrange equipped with rear standard HF driver is used in common acoustic chamber imposing a long path to high frequency waves. Lotus Line Array uses the shortest possible design by positioning the toroidal HF drivers in front of the midrange driver.

**SHM™** technology reduces the total harmonic distortion both in high frequencies by minimizing the length of waveguides and in low mid by increasing the radiating surface of the driver.



## CLS™ Technology

**CLS™** (Coaxial Line Source) technology is the definitive solution for two way configuration line source symmetrical array systems.

Standard two way line source arrays using only one low frequency driver are asymmetrical cabinets, **CLS™** based Lotusline CL series are symmetrical and optimized minimum front baffle sized.

**CLS™** technology offers all advantages of coaxial active horn arrangement applied to line source array systems. It means, minimum front baffle size, perfect symmetry of the baffle and so, perfect symmetry of the coverage.

Lotusline CL series uses **CLS™** technology, increasing the efficiency in low mid region, shaping the wavefront from spherical to ovoid and increasing consequently the maximum crossover frequency in vertical coupling.

## SSA™ Technology

**SSA™** (Spherical Source Array) technology is Lotusline's answer to an old question: How to build a high SPL, compact and configurable, true point source system?

**SSA™** cabinets are mathematically equivalent to a portion of a spherical segment whose acoustic centre at the centre of the mother sphere. In more simple words, **SSA™** cabinets are like pieces of orange, they can be used individually and can also rebuild a complete fruit.

**SSA™** cabinets are perfectly arrayable without audible interferences, even in very high frequencies.

Each cabinet can be used unitary for covering small areas or coupled with other **SSA™** cabinets for larger ones.

## MVC™ Technology

**MVC™** (Multi Vent Convection) technology, increase the power handling capacity of vented loudspeaker by combining acoustical and cooling functions of vents. Multiple curved vents are placed around the main loudspeaker offering a natural air convection flow lowering the temperature of the voice coil in any working position. **MVC™** equipped speakers are much more thermal breakdown proofed than standard ones, and decrease thermal compression by lowering nominal temperature of the moving coil.

The **MVC™** (multi vent convection) technology, allows the Lotusline CL, MQ and MA series to handle nominal full power capacity in any working position.



## SIC™ Technology

**SIC™** (Single Interactive Chamber) technology, increases bandwidth and efficiency while reducing total volume of vented bass loudspeaker by combining rear and front load in the same volume. Because rear and front load do not work in the same frequency region, it is possible, with a special calculation layout, to fuse both functions in only one. In practice, **SIC™** technology, by using this new physical approach, virtually suppresses one of the two volumes and dramatically reduce the total size of vent loaded subwoofer.

Further advantage of **SIC™** technology is the better cooling of the loudspeakers due to the exceptionally large size of the vent aperture.

### Lotusline Technologies

#### **SIC™** technology used in SB Series

- Best versus frequency-extension to size ratio
- Hi efficiency
- Better cooling

#### **SSA™, MVC™** technologies used in SSA Series

- Spherical source array system
- Point source arrangement
- Better cooling, lo thermal compression in any working position

#### **MVC™** and Coaxial technologies used in MQ and MA Series

- Point source, regular spatial response, perfect acoustic field
- Better cooling, lo thermal compression in any working position

#### **SHM™** and line source technologies used in LA Series

- True line source system
- Low distortion at hi SPL
- Perfectly coherent arrays controlling vertical opening

#### **CLS™, MVC™** and Coaxial technologies used in CL Series

- True line source system
- Point source, regular spatial response, perfect acoustic field
- Better cooling, lo thermal compression in any working position

# LAM Series



The key to Sound

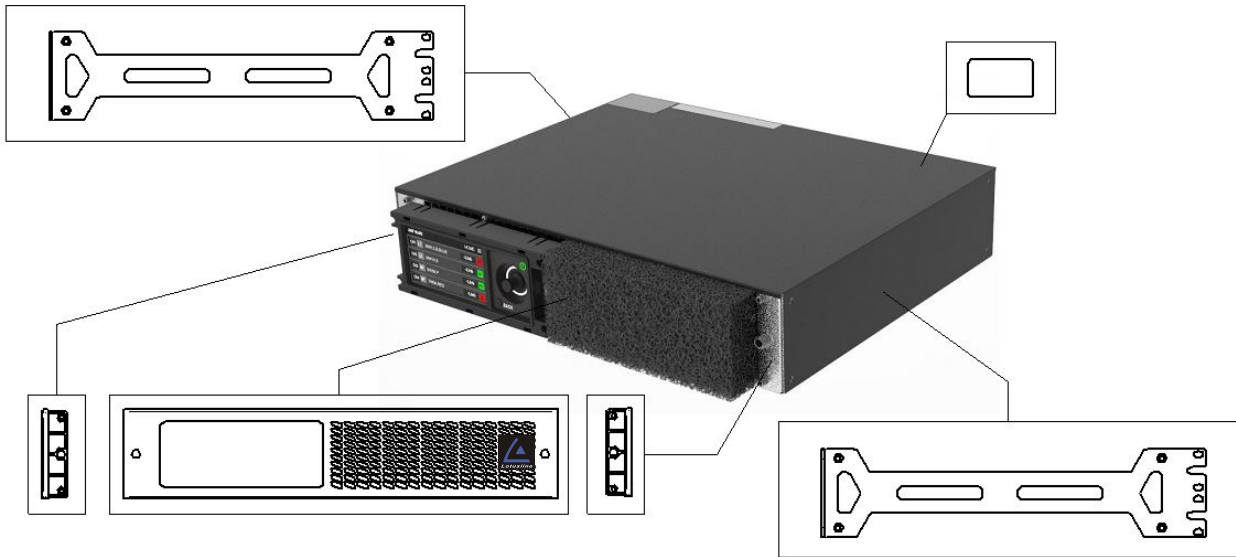
## LAM 8 / 12 Power Amplifier



- Integrated DSP management system on board
- Under Armonia Plus system manager network controlled
- 2048 taps FIR filters
- With two 4-channel models available namely 8 and 12
- Can deliver up to 3000W per channel
- Designed for high performance fixed installation and touring

LAM is an optimized amplifier platform developed for wishing to offer a complete speaker package to all systems of Lotusline loudspeaker, all Lotusline loudspeakers systems are recommended to apply under the preset data of DSP on board. LAM is Acronym for Lotusline All Markets, this CB scheme-certified, EMC Tested amplifier platform allows efficient global market access and simple applications for all Lotusline users.

Proprietary speaker presets can be created and shared through the widely adopted ArmoniaPlus software. Based on Lotusline amplification technology, LAM includes comprehensive signal processing, 2048 taps FIR filters, Damping Factor Control, Dynamic EQ, analog, AES3, Dante/AES67 inputs and outputs, and a bright 4.3" IPS display with capacitive touch. The patented PFC-equipped power supply can operate anywhere in the world, and sports 750J of energy storage to provide a consistent performance. With two 4-channel models available, namely the 8 and the 12, the LAM offers ample power and voltage and can deliver up to 3000 W per channel. The amplifier can be controlled remotely with ArmoniaPlus or by third-party software, and locally through the display interface. The available functions include preset recall, gain, delay, and muting, satisfying all most common end user's requirements.



Component Diagram



Rear Panel

## LAM 8 / 12 Power Amplifier



- Integrated DSP management system on board
- Under Armonia Plus system Manager net work Controlled
- 2048 taps FIR filters
- With two 4-channel models available namely 8 and 12
- Can deliver up to 3000W per channel
- Designed for high performance fixed installation and touring

## Specifications

Channel Handling	
Outputs	4 x Speakon NL4 4 Dante/AES67 TX (from local input or DSP)
Inputs	4 XLR female 4 XLR male (LINK)
Analog	4 XLR female 4 XLR male (LINK)
Digital AES3	2 XLR female (4 x audio channels) 2 XLR male (LINK)
Digital Dante/AES67	2 XLR Ethercon (4 x audio channels)
Audio	
	Gain LAM8 LAM12
Input sensitivity @ 8 Ω	32 dB 2.77 2.77 Vrms
	S/N (20 Hz - 20 kHz @ 8 Ω) 109 Typ. 110 Typ. dB(A)
Max input level	24 dBu
Frequency Response @ 8 Ohm load	20 Hz - 20 kHz +/- 1.0 dB
Crosstalk (1 kHz)	-75 dB typ.
Input impedance	20 kΩ Balanced
CMRR	65 dB typ.
THD+N (from 0.1 W to Half Power)	< 0.1% (typical < 0.05%)
SMPTE IMD (from 0.1 W to Half Power)	< 0.1% (typical < 0.05%)
Output impedance at 100 Hz	30 mΩ
DSP	
AD converters	24 Bit Tandem™ @ 48 kHz 125 dB-A Dynamic Range - 0.005 % THD+N
DA converters	24 Bit Tandem™ @ 48 kHz 117 dB-A Dynamic Range - 0.003 % THD+N
Sample rate converter	24 Bit @ 96 kHz 140 dB Dynamic Range - 0.0001 % THD+N
Internal precision	32 bit floating point
Latency	2.5 ms fixed latency architecture
Memory/Presets	50 amplifier snapshots, virtually unlimited speaker presets
Delay	2 s (input) + 100 ms (output) for time alignment
Equalizer	Raised-cosine, custom FIR, parametric IIR: peaking, hi/lo-shelving, all-pass, band-pass, band-stop, hi/lo-pass
Crossover	linear phase (FIR), Butterworth, Linkwitz-Riley, Bessel: 6 dB/oct to 48 dB/oct (IIR)
Limiters	TruePower™, RMS voltage, RMS current, Peak limiter
Damping control	Active DampingControl™ and LiveImpedance™ measurement
Display Specs	
Resolution	480x272, 4.3" diagonal
Brightness	600 nit
Control	Multitouch capacitive. Rotary encoder 20 steps/turn with pushbutton

Output Stage	LAM 8	LAM12
per channel @ 8 Ω (symmetrical)*	1400 W	1800 W
per channel @ 4 Ω (symmetrical)*	2000 W	2700 W
per channel @ 2 Ω (symmetrical)*	2000 W	2000 W
per channel @ 8 Ω (asymmetrical)**	1500 W	1900 W
per channel @ 4 Ω (asymmetrical)**	2300 W	3000 W
per channel @ 2 Ω (asymmetrical)**	2000 W	2000 W
@ 8 Ω bridged	4000 W	5400 W
@ 4 Ω bridged	4000 W	4000 W
Maximum unclipped output voltage	155 V <sub>peak</sub>	180 V <sub>peak</sub>
Maximum output current	>55 A <sub>peak</sub>	>55 A <sub>peak</sub>

\* All channels driven and loaded symmetrically  
\*\* All channels driven, but channels 2 and 4 at -6dB

Power & Thermal		LAM8	LAM12		
@ 100 V	Standby	Power	16	16	W
	Idle	Power	42	42	W
	1/8 Power @ 4Ω	Power	1460	1570*	W
		Current Draw	15.3	16.5	A <sub>rms</sub>
		Thermal Loss	1550	1670	BTU/h
@ 240V	Standby	Power	17	17	W
	Idle	Power	42	42	W
	1/8 Power @ 4Ω	Power	1440	1940	W
		Current Draw	6.6	8.9	A <sub>rms</sub>
		Thermal Loss	1480	2000	BTU/h
Power supply		Universal regulated switch mode with PFC, SRM			
Nominal voltage (±10%)		100-240 VAC @ 50-60Hz			
Operating Voltage		90-264 VAC @ 50/60 Hz			
AC Mains connector		IEC C20 inlet (20 A max)			

\* Limited by AC current to 1/10 Rated Power

Networking	
Connectivity	Two Gigabit Ethernet ports, switched, Ethercon connectors
Supported topologies	Star, Daisy Chain
Remote interface	ArmoniaPlus or other preferred software

Construction	
Dimensions	483 x 381 x 88.9 mm (19 x 15 x 3.5 in)
Weight	LAM8
	LAM12
	11.3 kg
	11.3 kg

Data subject to change without notice



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