Operation Manual Active Line Arrays with Beam Steering

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ZL-A 100 AlArray (DANTE) ZL-A 125 AlArray (DANTE) ZL-A 200 AlArray (DANTE) ZL-A 250 AlArray (DANTE)

Description

Active line array with beam steering for even sound coverage in large rooms. With our browser-based LB AUDIO CONTROL App, the sound dispersion of the ZL-A Series can be quickly simulated regarding room dimensions and audience.

With the OPTIMIZE function, one or two beams are automatically generated to cover the audience. Alternatively, the beams can be formed manually varying inclination and opening angles. Long-throw full-range drivers with an exceptionally wide frequency range ensure high speech intelligibility and excellent music reproduction.

The line arrays are controlled and monitored with network commands via Ethernet. The latest Class D amplifier technology with sleep and standby functions ensure very low power consumption.



Key Features

- Active DSP-controlled Line Array with Beam Steering
- Adjustable vertical dispersion using the LB AUDIO CONTROL App
- Coverage of the audience with one or two beams
- Automatic optimization of sound dispersion to cover the audience
- · Control and status monitoring with network commands
- Very linear frequency range
- Horizontal beam width 140°
- Optional DANTE-Interface
- Customized versions on request

Fields of Application

- Exhibitions, trade fairs
- Hotels
- Churches
- Concert halls, theatres
- Museums
- Large rooms, halls



The dispersion characteristics of the ZL-A Series can be adjusted with our new LB AUDIO CONTROL App.

Please read the following information and these instructions carefully before installation and be sure to follow them!



Components inside the device may contain high voltages which, if touched, can result in life-threatening electric shocks.

CAUTION!

Service and repair work must only be carried out by qualified personnel. Do not open the case as there is a risk of electric shock. There are no controls or components inside the device that require you to open the case. If the case has to be opened by qualified personnel, make sure that the device is completely disconnected from the power supply.

THIS UNIT MUST BE EARTHED!

The connection to the mains supply is made using the included power cable. A damaged connection cable may not be repaired. The device must be grounded! Never insulate the protective contact of the power plug.

The mains fuse is located inside the device. The mains fuse may only be replaced with a replacement fuse of the same value. Under no circumstances should you bypass the mains fuse or replace it with a higher value.

The operating voltage must match the local power supply.

The device should be shielded from moisture and wet conditions. It must not be operated in rain or close to water, baths, washbasins, sinks, swimming pools or in damp environments. Do not place any objects filled with water such as vases, glasses or bottles on the device.

Avoid direct sunlight and do not install it in the direct vicinity of radiators or other heat sources. Upon sudden change of climatic conditions (e. g. transfer from a cold place to a warm room) water may condense inside the device, which may lead to malfunction or damage. Before switch-on wait until the amplifiers have reached room temperature.

Unplug the mains plug to protect the device during a thunderstorm or if it is going to be left unsupervised or unused for a longer period of time. This prevents the device being damaged by lightning strikes or voltage surges in the mains grid. Do not touch the case when the device is in use as it may heat up during operation. Make sure that the device is ventilated sufficiently.

Improper use will invalidate the warranty!

Disclaimer

LB is not liable for damage to speakers or other equipment caused by negligence or in cases where the product has been used for something other than its intended purpose. In particular, LB is not liable for lost earnings or other financial losses incurred by the purchaser. This limitation also applies to the personal liability of employees, representatives and agents.

These products meet the requirements of European Directive 2002/96/EC (WEEE) and 2002/95/EC (RoHS).



Technical Data

Dimensions



D:			
Principle	Active Line-Array with Beam Steering		
Components	12 × 2,5" long excursion full-range drivers with Neodym-magnet system		nge drivers
Dispersion horizontal	140° (Ø 500 Hz 10 kHz) -6 dB		
Beam Steering vertical	1 Beam or 2 Beams, independently adjustab		
Beam direction	- 45° +45°,	adjustable	
Opening angle	-20°+60° ,	adjustable	
	(negative ope	ning angles creat	te a focus in
	front of the sp	oeaker)	
Software	LB AUDIO CO	NTROL App for P	C and Mac
Frequency range	60 22.000 H	z (-10dB), 100 2	20.000 Hz (-3 dB)
Sensitivity	max. 120 dB (@1 m)	
Nom. input level	Line In analog	g +4 dBU sym., di	gital 0 dBFS
Max. input level	+ 14 dBU sym		
Impedance	10 kOhms		
Amplifier power	6 x 70 watts		
Dynamic range	> 117 dB		
DSP	32 Bit. 48 kHz		
Latency	0.64 ms		
DSP Functions	10 narametric	filters for input	
	highshelf, low	/shelf, compresso	or, limiter,
	delay, multiba	Ind-limiter, 40 pre	sets,
	Auto On/Off (S	Sleep Mode)	
Max. Delay (Input)	1200 ms (408 r	m)	
Controls	DIP-Switch for Groundlift and Steady ON,		Steady ON,
	Power switch		
Network commands	On/Off, Gain, Mute, Presets, Level,		
(Remote control)	Status monitoring		
Dimensions (W×H×D)	80 × 960 × 103 mm		
Weight	6.5 Kg		
Cabinet	Aluminium, powder coated		
	front metal grille, powder coated		
Attachment points	Thread inserts M 8 on top/bottom,		
Connectore	VID Input Eth	CK	
Connectors	IFC connecto	r	JI DANTE,
Power supply	90 260 V AC	50/60 Hz	
	50200 V A0	00/00 112	
Power consumption			
Standby	2 watts		
SLEEP	2 watts, with	DANTE-Interface	3.1 watts
All channels active (Idle)	5.2 watts, with	h DANTE-Interfac	e 5.6 watts
Max. cont. power consumption	80 watts		
Peak power consumption	450 watts		
Thermal loss	max. 80 watts. 273 BTU/h		
Warranty	5 vears		
	o youro		
Madal		Orden No	Varaian
wodel		Urder-No.	version
71 8 600 615		1011 0001	
ZL-A 100 AlArray White			KAL 9016
	ito		
	ck	1011-0003	RAL 9005
Other lenghts and colours or	request		

Technical Data

Dimensions



Principle	Active Line-A	rrav with Beam S	teering
Components	16 × 2,5" long excursion full-range drivers		nge drivers
	with Neodym-magnet system		5
Dispersion horizontal	140° (Ø 500 Hz 10 kHz) -6 dB		
Beam Steering vertical	1 Beam or 2 Beams, independently adjustab		
Beam direction	- 45° +45°,	adjustable	
Opening angle	-20°+60° ,	adjustable	
	(negative ope	ening angles crea	te a focus in
	front of the sp	beaker)	
Software	LB AUDIO CO	NTROL App for P	C and Mac
Frequency range	60 22.000 H	lz (-10dB), 100 :	20.000 Hz (-3 dB)
Sensitivity	max. 123 dB (@1 m)	
Nom. input level	Line In analog	g +4 dBU sym., di	gital 0 dBFS
Max. input level	+ 14 dBU sym	l.	
Impedance	10 kOhms		
Amplifier power	8 x 70 watts		
Dynamic range	> 118 dB		
DSP	32 Bit, 48 kHz		
Latency	0,64 ms		
DSP Functions	10 parametric	: filters for input,	
	highshelf, low	vshelf, compresso	or, limiter,
	delay, multiba	and-limiter, 40 pre	sets,
	Auto Un/Uff (Sleep Mode)	
Max. Delay (Input)	1200 ms (408	m)	
Controls	DIP-Switch for Groundlift and Steady ON,		Steady ON,
Network commonds	On/Off Gain Muta Process Level		
(Remote control)	Status monitoring		
Dimensions (W×H×D)	80 × 1250 × 103 mm		
Weight	8.2 kg		
Cabinot	Aluminium, powder coated		
Cabinet	front metal grille, powder coated		ed
Attachment points	Thread inserts M 8 on top/bottom.		om.
· · · · · · · · · · · · · · · · · · ·	M 6 on the back		,
Connectors	XLR Input, Eth	nernet, Ethernet fo	or DANTE,
	IEC connecto	r	
Power supply	90260 V AC	50/60 Hz	
Power consumption			
Standby	2 watts		
SLEEP	2 watts, with	DANTE-Interface	3.1 watts
All channels active (Idle)	6.3 watts, wit	h DANTE-Interfac	e 6.7 watts
Max. cont. power consumption	107 watts		
Peak power consumption	600 watts		
Thermal loss	max. 107 watts, 364 BTU/h		
Warranty	5 years		
Model		Order-No.	version
ZL-A 125 AIArray White		1012-0001	RAL 9016
ZL-A 125 AlArray Black		1012-0002	RAL 9005
ZL-A 125 AIArray DANTE Wh	ite	1012-0003	RAL 9016
ZL-A 125 AlArray DANTE Bla	ck	1012-0004	RAL 9005
Other lenghts and colours on request			

Technical Data ZL-

Dimensions



Principle	Active Line-Array with Bean	n Steering	
Components	$24 \times 25^{\circ}$ long excursion full-range drivers		
oompononto	with Neodym-magnet system		
Dispersion horizontal	140° (Ø 500 Hz 10 kHz) -6 dB		
Beam Steering vertical	1 Beam or 2 Beams, independently adjusta		
Beam direction	- 45° +45°, adjustable		
Opening angle	-20°+60° , adjustable		
	(negative opening angles cr	eate a focus in	
	front of the speaker)		
Software	LB AUDIO CONTROL App for	· PC and Mac	
Frequency range	60 22.000 Hz (-10dB), 100 .	20.000 Hz (-3 dB)	
Sensitivity	max. 126 dB (@1 m)		
Nom. input level	Line In analog +4 dBU sym.,	digital 0 dBFS	
Max. input level	+ 14 dBU sym.		
Impedance	10 kOhms		
Amplifier power	12 x 70 watts		
Dynamic range	> 120 dB		
DSP	32 Bit, 48 kHz		
Latency	0,64 ms		
DSP Functions	10 parametric filters for inpu	t,	
	highshelf, lowshelf, compres	ssor, limiter,	
	delay, multiband-limiter, 40 p	resets,	
	Auto Un/Uff (Sleep Mode)		
Max. Delay (Input)	1200 ms (408 m)		
Controls	DIP-Switch for Groundlift and Steady ON,		
Network commands	On/Off Gain Mute Presets Level		
(Remote control)	Status monitoring		
Dimensions (W×H×D)	80 × 1920 × 103 mm		
Weight	11 kg		
Cabinet	Aluminium, powder coated		
	front metal grille, powder coated		
Attachment points	Thread inserts M 8 on top/bo	ottom,	
	M 6 on the back		
Connectors	XLR Input, Ethernet, Etherne	t for DANTE,	
	IEC connector		
Power supply	90260 V AC 50/60 Hz		
b (1)			
Power consumption Standby	2 watte		
SLEEP	2 watts with DANTE-Interfa	co 3 1 watts	
All channels active (Idle)	8 3 watts with DANTE-Intern	face 87 watts	
Max cont power consumption	160 watts		
Peak nower consumption	900 watts		
	JUU Walls		
Werrenty	max. 160 watts, 565 Β10/h		
warranty	o years		
Model	Order-No.	version	
ZL-A 200 AlArray White	1009-0001	RAL 9016	
ZL-A 200 AIArray Black	1009-0002	KAL 9005	
	ne 1009-0003		
Other lenghts and colours or	request	11AE 3003	

Technical Data

Dimensions



Principle	Active Line-Array with Beam Steering		
Components	32 × 2,5" long excursion full-range drivers with Neodym-magnet system		
Dispersion horizontal	140° (Ø 500 Hz 10 kHz) -6 dB		
Beam Steering vertical	1 Beam or 2 Beams, independently adjustable		
Beam direction	- 45° +45°, adjustable		
Opening angle	-20°+60° , adjustable		
	(negative opening angles create a focus in		
	front of the speaker)		
Software	LB AUDIO CONTROL App for PC and Mac		
Frequency range	60 22.000 Hz (-10dB), 100 20.000 Hz (-3 dB)		
Sensitivity	max. 129 dB (@1 m)		
Nom. input level	Line In analog +4 dBU sym., digital 0 dBFS		
Max. input level	+ 14 dBU sym.		
Impedance	10 kOhms		
Amplifier power	16 x 70 watts		
Dynamic range	> 120 dB		
DSP	32 Bit 48 kHz		
Latency	0.64 ms		
DSP Functions	10 parametric filters for input		
	highshelf, lowshelf, compressor, limiter,		
	delay, multiband-limiter, 40 presets,		
	Auto On/Off (Sleep Mode)		
Max. Delay (Input)	1200 ms (408 m)		
Controls	DIP-Switch for Groundlift and Steady ON,		
	Power switch		
Network commands	On/Off, Gain, Mute, Presets, Level,		
(Remote control)	Status monitoring		
Dimensions (W×H×D)	80 × 2500 × 103 mm		
Weight	13 kg		
Cabinet	Aluminium, powder coated		
	front metal grille, powder coated		
Attachment points	Thread inserts M 8 on top/bottom,		
Connectors	XLK Input, Ethernet, Ethernet for DANTE,		
Power supply			
	30200 V AC 30/00 HZ		
Power consumption			
Standby	2 watts		
SLEEP	2 watts, with DANTE-Interface 3.1 watts		
All channels active (Idle)	10.4 watts, with DANTE-Interface 10.6 watts		
Max. cont. power consumption	210 watts		
Peak power consumption	1200 watts		
Thermal loss	max. 210 watts, 717 BTU/h		
Warranty	5 vears		
Madal	Order No. Version		
	Urder-No. Version		
ZL-A 250 AlArray White	1010-0001 RAL 9016		
ZL-A 250 AIArray Black	1010-0002 KAL 9005		
	ILE IVIU-UUUS KAL 9016		
Other lenghts and colours or	nequest		

Accessories





Front without grille



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Connection-Terminal

The LB AUDIO CONTROL app is available for download on our homepage. Versions for Windows and Mac OS are available. Follow the installation steps during the installation process.

The icon for running the app is installed on the desktop.



Audio Control

When you start the LB AUDIO CONTROL app, the Overview window opens.



If the new start screen for version 2.2 does not appear when installing over an old version of LB AUDIO CONTROL, please refresh the browser cache using the key combination [CTRL] + [SHIFT] + [R] (For EDGE Browser with key combination [CTRL] + [F5]). Then click on Start and perform a refresh in the overview window using the same key combination. Then close the app. The next time you open it, the new version will be available.

OVERVIEW-Window

When you start the LB AUDIO CONTROL app, the Overview window opens. All LB devices detected in the network are displayed here. Virtual demo devices can also be inserted via the menu.

.....

L Audio	o Control Overview						⊕⊕≡	∎	 Zoom, also with [Strg]+[+] / [–]
Power	Device Name	Model	DHCP	IP Address		MAC Address			— Menu
		Demo PA-S Series -		6	৶	6		3	 Firmware Update
		Demo PA Series ·		5	₩	5		3	
		Demo DL-A 2.0 DSC ·		7	₩	7		3	ATTENTION! Sottings and prosets
		Demo SB-A 2.2 DSC ·		9	৶	9	「二百(3	can be lost due to the
		Demo DL-A 2.4 DSC AlArray 🔹		0	₩	0	区市	3	firmware update.
		Demo DLX-A 2.8 DSC AIA •		3	৶	3	「四方」	3	update please save
		Demo ZL-A 100 DSC AIAr •		8	₩	8	区市	3	presets on the PC.
		Demo ZL-A 125 DSC AlAr		1	₩	1	区市	3	After the firmware up- date, the presets can
		Demo ZL-A 200 DSC AIAr		2	.↓	2	区市	3	then be loaded again.
		Demo ZL-A 250 DSC AIAr		4	₩	4	区市	3	
									Remove device
	Assign								
 Device: Switch	device na s on/of	ames			Sav (Dev	e settings vice name and IP a	Iddress + DI	HCP)	 Open device (DEVICE-Window)
By marking the corresponding line the devices in the list can be moved using the arrow keys $\blacktriangle / \checkmark$			lf necess then DH0	ary, fix P must	ed IP addresses ca be switched off	an be assign	ied,		
		DHCP from th	(automatic acqu ne DHCP server i	isition o n the ne	f the IP address etwork)				

Open OVERVIEW-Window

Click 🔀 to open the device window

With our browser-based LB AUDIO CONTROL app, the ZL-A 200 DSC AlArray can be configured in a very short time according to the room size and the positions of the audience.

With the OPTIMIZE function you can optionally aim one or two beams automatically at the audience areas. Alternatively, the beams can also be adjusted individually over inclination and opening angle.

Basic Settings

When you open a device or a demo device, a room situation is factory preset. For a new project, adjust the relevant parameters and calculate the sound dispersion.



Individual Settings

For a new project, enter the parameters individually. The settings are saved and taken over directly to the connected line array (Device).



Individual settings with two beams and optimization for the audience areas.

You can enter the parameters individually for your own project:



Manual enter of delays (custom delays)

If you want to realize a special directional characteristic, e.g. due to a simulation in a CAAD program (EASE, ULYSSES or similar), you can enter the delays [mm] directly and simulate the sound dispersion.

To do this, you must first activate "Custom Delays" in the menu, then the additional button will appear in the Room simulation window. Clicking on the Delay button opens the input window for the custom delays.



DEVICE-Window: Menu Settings



Lock-Funktionen



If necessary, network commands can also be allowed on locked devices. This also makes it possible to control locked devices via media controls.

If necessary, individual presets can also be allowed on locked devices. This allows the user to switch between different operating scenarios.

Lock Levels

The two user levels USER and ADMIN are available for all devices. The ADMIN user level has priority over the USER level, i.e. a device locked at the USER level can be unlocked by the ADMIN, but not the other way around. The factory passwords "USER" and "ADMIN" should be replaced by project-related passwords and documented.

DSP settings in the Input window

DSP In the Device window, click to open the Input window with the DSP functions ⊕⊖£ Demo ZL-A 200 DSC AlArray Name Channel: DSP +12 _ Parametrische Filter: there are -12 10 filters available for each channel +6 -36 Input Gain + • -48 Freq Level Meter -60 -6 1000 -72 2000 Low Pass -12 4000 **High Pass** dB -3 -18 Low Pass 6dB 8000 High Pass 6dB 16000 .24 Mute Low Shelf **High Shelf** Freq On On Bell 31.5 870 0 -3 orth 24dE 63 0 2300 -2 Notch 125 0 4000 0 -3 210 8000 0 -1.5 9000 3 500 0.6 High and low pass filters per channel On On On On 🔲 On High Pa Delay Freq 22.6 B 90 th 24dF 1000 Device type dependent 6dB Dn On On Butterworth 12dB Peak Limiter Com On Butterworth 24dB Sample shold dBU Release 1 ms dBU Bessel 12dB 0 ms 0 mm Bessel 24dB cm On Linkwitz-Rilev 12dB Limiter Compressor m Linkwitz-Riley 24dB in per channel per channel

Network commands to change device settings

Successfully changing DSP parameters via network commands is responded to with the HTTP status code "200 OK". Alternatively, "cmds" can be replaced by "smds" in the network command. Then the overall status (see <DSC IP>/ status below) is returned as a response.

Function	URL	Examples URLs
MUTE	<dsc ip="">/cmds/mute/<ch>/<i o=""></i></ch></dsc>	Mute input 1: http://192.168.0.100/cmds/mute/1/i
UNMUTE	<dsc ip="">/cmds/unmute/<ch>/<i o=""></i></ch></dsc>	Unmute input 2: http://192.168.0.100/cmds/unmute/2/i
GAIN	<dsc ip="">/cmds/gain/<ch>/<i o="">/<value></value></i></ch></dsc>	Gain input 1 auf -4,8 dB: http://192.168.0.100/cmds/gain/1/i/-4.8
MIXER	<dsc ip="">/cmds/mixer/<ch out="">/o/<ch in="">/<value></value></ch></ch></dsc>	Mixer Output 3, Input 7 auf -6 dB http://192.168.0.100/cmds/mixer/3/o/7/-6
PRESET	<dsc ip="">/cmds/preset/<num></num></dsc>	Select preset 10: http://192.168.0.100/cmds/preset/10
PRESET LOCK	<dsc ip="">/cmds/preset/<num>/lock/<true false=""></true></num></dsc>	Unlock (allow) Preset 2 http://192.168.0.100/cmds/preset/2/lock/false
POWER	<dsc ip="">/cmds/power/<on off=""></on></dsc>	Switch device on/off http://192.168.0.100/cmds/power/on http://192.168.0.100/cmds/power/off

Network commands for status queries

All devices output status information in JSON format. Only the available channels are listed.

Function	URL	Examples URLs		
STATUS	<dsc ip="">/status http://192.168.0.100/status</dsc>	Get overall status (power, preset, gain, mute, mixer		
Example JSO	N response:			
{ "power": "s { "channel": 1 { "channel": 2]}	leep", "preset": 1, "channels": [l, "type": "i", "gain": -12.0, "muted": true}, 2, "type": "i", "gain": -12.0, "muted": true},			
Function	URL	Examples URLs		
STATUS CH <dsc ip="">/status/<ch>/<i o=""></i></ch></dsc>		Get status of input channel 1 (gain, mute)		
Example JSO	N response:	http://102.100.0.100/3tatu3/1/1		

{ "channel": 1, "type": "i", "gain": -3.0, "muted": false}

Function	URL	Examples URLs			
LEVELS <dsc ip="">/levels</dsc>		Read out all levels and gain reductions (limit)			
Example JS(ON response:				
{	": [1, "type": "i", "level": 4.0, "limit": -3.2 }, 2, "type": "i", "level": 4.0, "limit": -1.6 },				
Function	URL	Examples URLs			
LEVELS CH	<dsc ip="">/levels/<ch>/<i o=""></i></ch></dsc>	Channel read out level and gain reduction of input 2 (limit) http://192.168.0.100/levels/2/i			
Example JS(DN response:	·			
{	2, "type": "i", "level": 4.0, "limit": -1.6 }				
Function	URL	Examples URLs			
LOCK STATU	IS <dsc ip="">/lockstatus</dsc>	Read out locking status (true for locked)			
Example JS(ON response:				
{"Device": tr "network co "presets": { "0": true, "1": false, "2": false, "3": true, "4": true, }}	rue, ommands": true,				
Function	URL	Examples URLs			
INFO	<dsc ip="">/info</dsc>	Read out global device info			
Example JS(ON response:	http://102.100.0.100/http			
{ "Name": "DI "Device": "E "PCB": "C41 "MAC": "44- "Version": { "BL": "1.2.1 "MCU": "2.1 "DSP": "2.1 "preset": {	L-A 2.4 DSC", DL-A 2.4", 6 v02", -6F-D8-43-00-23", 2", 1.0", .5"},				

"preset : {
 "num": 0,
 "name": "DL-A 2.4: 0°",
 "changed": true},
 "Power": "on",
 "Runtime [h]": "0:00:05",
 "Bootmode": "BL"
}

www.lb-lautsprecher.de ZL Series Line Arrays





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