

## DATA SHEET

# AMPLIFIED LOUDSPEAKER CONTROLLERS (ALC) 2-CHANNEL AND 4-CHANNEL UNITS WITH DSP, ANALOG INPUT



Biamp's line of Amplified Loudspeaker Controllers (ALC) offers factory-optimized DSP processing, protective limiting and amplification, as well as signal routing, zone switching, and remote monitoring for virtually any application using our Community loudspeakers. Standard Ethernet communication protocols allow for fast system design, system control, and remote system monitoring. Analog inputs included in each model are assignable per channel, supporting quick and easy integration into any new or existing system.

Carefully chosen to precisely match the needs of all Community loudspeakers, three models of Amplified Loudspeaker Controllers are available: **ALC-404AN** (4 channels x 400W), **ALC-1604AN** (4 channels x 1600W) and **ALC-3202AN** (2 channels x 3200W). Bridged channel pairs support driving loads down to 4 ohms at double the power of a single channel, providing additional flexibility for real-world system applications.

Biamp-authored loudspeaker presets include equalization, high pass filters, and multi-stage limiters tailored to each model, ensuring consistent sound quality and full loudspeaker protection in every application. Additionally, each Community loudspeaker preset includes loudspeaker power and impedance information, allowing the system configuration software to display the total power and impedance of multiple parallel-wired loudspeakers, further reducing the time and effort required to match complete loudspeaker systems with the appropriate ALC models and output channel configurations.

ALCs reduce complexity and increase overall system value in every installation. Their compact size, packing either 2 or 4 channels into 1 RU, reduces rack costs and minimizes space requirements. The industry-leading integrated DSP reduces the need for external outboard equipment, drastically reducing installation effort and expense. Extremely high operational efficiency greatly reduces power consumption, resulting in the lowest thermal dissipation ratings in the industry, and minimizes the need for external cooling devices. Additionally, each channel is capable of directly driving 70V/100V distributed loudspeakers, low impedance loudspeakers from 2 ohms, or any mixed configuration of low and high impedance output loads, making ALCs extremely flexible and capable in a wide range of applications.

In-depth control and monitoring is accomplished via ArmoníaPlus® system manager software. Assigning loudspeakers to ALC output channels is a simple, visual, drag-and-drop process. Loudspeaker groups and zones can also be created quickly by simply clicking on the images of the loudspeakers to be grouped together. Tailoring the sound and managing the system can be done at a remote, decentralized location. All ALC models can also be trusted in mission critical applications, such as fire alarm systems, thanks to the cleverly engineered power supply that allows reliable operation even when connected to a UPS. In addition, the per-channel, user-assignable fault-indicating GPIO connectors on the rear panel may be integrated with third-party monitoring and emergency notification systems.

## FEATURES

- Output power optimized to match the needs of Community loudspeakers from Biamp
- Drive low impedance, 70V or 100V loudspeakers on any channel
- Fast and easy access to complete Community loudspeaker library
- 1024 Tap FIR Linear Phase DSP loudspeaker processing
- Factory-optimized multi-stage loudspeaker protection limiters
- Power Sharing technology allows asymmetric output loading
- Biamp's loudspeaker presets allow software to automatically calculate and display power needs and headroom for each ALC output channel
- Easily configured system control for small-to-medium venues
- Third-party plug-ins for large venue control
- Quickly create and manage loudspeaker groups / zones and signal routing
- IEC 60849 compliant monitoring and reporting via software and hardware

## APPLICATIONS

- Main systems, Central or Distributed, Subwoofers, hi-Z/lo-Z Applications
- Emergency Notification Systems
- Theaters, Restaurants, and Bars
- Houses of Worship
- Gyms and Fitness Centers
- Sports Fields
- Stadiums
- Lecture Halls
- Amusement Parks
- Shops and Stores
- Convention or Business Centers
- Cruise Ships

## ALC TECHNICAL SPECIFICATIONS

CHANNELS		ALC-404AN	ALC-1604AN	ALC-3202AN
Output Channels		4 Hi-Z or Lo-Z (bridgeable per ch. pair)		2 Hi-Z or Lo-Z (bridgeable per ch. pair)
Input Channels				
Analog		4	4	2
AUDIO		ALC-404AN	ALC-1604AN	ALC-3202AN
Gain				
Input Sens @8Ω	26 dB	2.48 V <sub>rms</sub>	4.91 V <sub>rms</sub>	5.03 V <sub>rms</sub>
Input Sens @8Ω	29 dB	1.76 V <sub>rms</sub>	3.48 V <sub>rms</sub>	3.56 V <sub>rms</sub>
Input Sens @8Ω	32 dB	1.24 V <sub>rms</sub>	2.46 V <sub>rms</sub>	2.52 V <sub>rms</sub>
Input Sens @8Ω	35 dB	0.88 V <sub>rms</sub>	1.74 V <sub>rms</sub>	1.79 V <sub>rms</sub>
Signal-to-Noise Ratio 20 Hz- 20 kHz @ 8Ω		>104 dB(A)	>110 dB(A)	>111 dB(A)
Maximum Input Level		20 dBu		
Frequency Response		20 Hz - 20 kHz ±0.5 dB, 1 W @ 8Ω		
Crosstalk (1 kHz)		-70 dB		
Input Impedance		20 kΩ balanced		
THD+N (from 0.1 W to Full Power)		< 0.1% (typical < 0.05%)		
IMD (from 0.1 W to Full Power)		< 0.05%		
Slew Rate		> 50 V/ Qs @ 8Ω, input filter bypassed		
Damping Factor		> 500 @ 8Ω, 20 Hz - 100 Hz		
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 @ 44.1 kHz to 192 kHz 140 dB Dynamic Range - 0.0001 % THD+N		
Internal Precision		32-bit floating point		
Latency		2.5 ms fixed latency architecture		
Memory/Presets		128 MB (RAM) plus 512 MB flash for presets		
Delay		2 s (input) + 100 ms (output) for signal 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		

\*The power figure is calculated by driving all channels loaded symmetrically; uneven loads allow higher performance achievement

Biamp strives to improve its products on a continual basis. Specifications are therefore subject to change without notice.

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OUTPUT STAGE*		ALC-404AN	ALC-1604AN	ALC-3202AN	
Max output power per channel @ 8Ω		400 W	1250 W	1250 W	
Max output power per channel @ 4Ω		400 W	1400 W	2400 W	
Max output power per channel @ 2Ω		400 W	1600 W	3200 W	
Max output power @ 4Ω (Bridged)		800 W	3200 W	6400 W	
Max output power @ 8Ω (Bridged)		800 W	2800 W	4800 W	
Max output power @ Hi-Z 100V distributed line		400 W	1600 W	3200 W	
Max output power @ Hi-Z 70V distributed line		400 W	1600 W	3200 W	
Max Shared Power (all channels)		1200 W	4800 W	6400 W	
Max Unclipped Output Voltage @8Ω		80 V <sub>peak</sub>	142 V <sub>peak</sub>	142 V <sub>peak</sub>	
Maximum Output Current		33 A <sub>peak</sub>	45 A <sub>peak</sub>	80 A <sub>peak</sub>	
POWER & THERMAL		ALC-404AN	ALC-1604AN	ALC-3202AN	
@ 115 V	Idle	Power (W)	31.1	31.3	32.5
		Current Draw (A <sub>rms</sub> )	0.45	0.47	0.31
		Thermal Loss (BTU/h)	106	107	111
@ 1/8 Power @ 4Ω	1/8 Power @ 4Ω	Power (W)	227	823	780
		Current Draw (A <sub>rms</sub> )	2.1	7.7	7.0
		Thermal Loss (BTU/h)	261	760	613
@ 230 V	Idle	Power (W)	31.5	31.6	32.8
		Current Draw (A <sub>rms</sub> )	0.25	0.27	0.30
		Thermal Loss (BTU/h)	107	108	112
@ 1/8 Power @ 4Ω	1/8 Power @ 4Ω	Power (W)	251	840	755
		Current Draw (A <sub>rms</sub> )	1.4	4.3	3.9
		Thermal Loss (BTU/h)	344	818	528
Power Supply		Universal regulated switch mode with PFC, SRM			
Nominal Voltage (± 10%)		100-240 V @ 50-60Hz			
Operating Voltage		60-264 V (with reduced power below 90 V)			
Ambient Operating Temperature		0° - 45° C; 32° - 113° F			
Ambient Relative Humidity		0-95% (non-condensing)			
AC Mains Connector		IEC C20 inlet (20 A max) Region-specific power cord provided			
NETWORKING					
Standards Compliance		Auto-sensing Fast Ethernet (IEEE 802.3u, 100 Mbit/s)			
Supported Topologies		Star			
Remote Interface		ArmoniaPlus® System Manager			
PHYSICAL					
Dimensions H x W x D		1.75" x 17.4" x 14.7" (44 x 442 x 373 mm)			
Weight		Unit Weight			
		ALC-404AN	16.2 lbs (7.3 kg)	25 lbs (11.3 kg)	
		ALC-1604AN	17.3 lbs (7.8 kg)	26 lbs (11.8 kg)	
		ALC-3202AN	17.2 lbs (7.8 kg)	25 lbs (11.3 kg)	

# TECHNICAL DRAWING / DIMENSIONS / WEIGHTS

## H x W x D

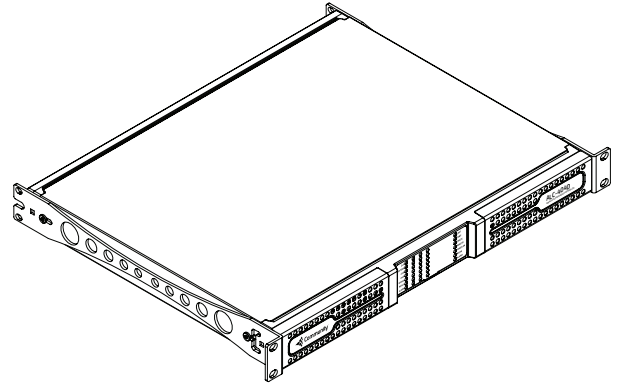
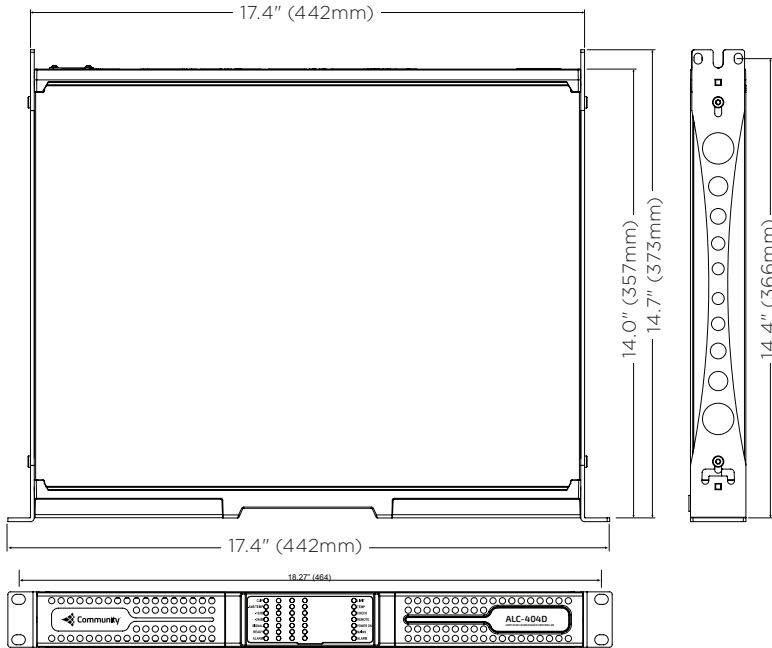
1.75" x 17.4" x 14.7"  
(44 x 442 x 373 mm)

## Unit Weight

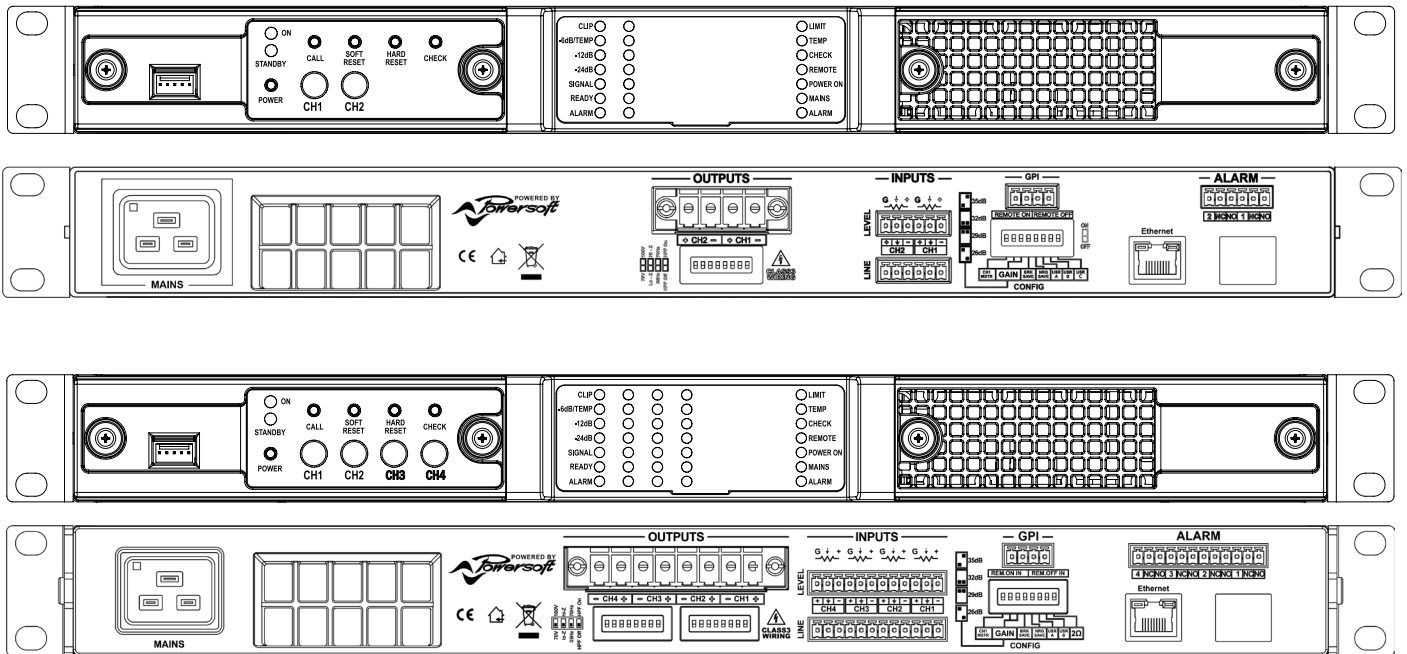
ALC-404AN: 16.2 lbs (7.3 kg)  
ALC-1604AN: 17.3 lbs (7.8 kg)  
ALC-3202AN: 17.2 lbs (7.8 kg)

## Shipping weight

ALC-404AN: 25 lbs (11.3 kg)  
ALC-1604AN: 26 lbs (11.8 kg)  
ALC-3202AN: 25 lbs (11.3 kg)



ALC-404AN shown - All ALCs have the same size enclosure



4-Channel front (without covers) and back panels