BIAMP SYSTEMS
ARCHITECTS & ENGINEERS SPECIFICATIONS
AUDIA® PRODUCT LINE

AUDIA DSP SERVERS

AudiaFLEX

The Digital Audio Platform shall be available in various I/O configurations. Inputs/outputs shall be specified in pairs, up to a total of 24. Mic/Line Input (IP-2), Acoustic Echo Cancellation (AEC-2HD), Telephone Interface (TI-2), Mic/Line Output (OP-2e), and Amplifier Output (PA-2) input/output options shall be available. Inputs/outputs shall be analog, with internal 24-bit A/D & D/A converters operating at a sample rate of 48kHz. All internal processing shall be digital (DSP). Electronically balanced inputs and outputs shall be provided on plug-in barrier-strip connectors. Inputs and outputs shall be individually programmable for either microphone or line level signal. Expansion units, utilizing CobraNet®, shall be available in 8-channel versions, for adding analog or digital inputs/outputs to a system. Each hardware configuration shall include six 60MHz 32-bit floating point DSPs. Software shall be provided for creating/connecting DSP system components within each hardware unit. Available system components shall include (but not be limited to) various forms of: mixers, equalizers, filters, crossovers, dynamics/gain controls, routers, delays, remote controls, meters, generators, and diagnostics. Ethernet communications shall be utilized for software control, configuration, and DSP distribution. Each hardware configuration shall be available with CobraNet (for multi-unit applications) or without CobraNet (for stand-alone applications). CobraNet technology shall transport digital audio over fast Ethernet, allowing multiple units to share digital audio. Multi-unit applications shall require an external 10/100Base-T Ethernet switch. All CobraNet and Ethernet connections shall be via CAT5 cable or fiber-optic. After initial programming, systems may be controlled using either TCP/IP or RS-232 serial communication by third party control systems (such as AMX® and Crestron®), by PC computer, and/ or by dedicated remote control devices. Software shall operate on a PC computer, with network card installed, running Windows®. The Digital Audio Platform shall be CE marked, UL/C-UL listed, and shall incorporate AES48-2005 Grounding & EMC practices. The Digital Audio Platform shall be compliant with the RoHS directive. Warranty shall be 5 years. The Digital Audio Platform shall be AudiaFLEX.

AudiaFUSION

The modular networked amplified processor shall be designed exclusively for use with Biamp® Audia® systems. The networked amplified processor shall be modular and support software configurable power levels/load options of 8 amplification modules per frame with 100 to 600 Watts per module (maximum of 2400W per chassis) and 70V or 100V with direct drive capability, or low-impedance (4 or 8Ω) operation. The networked amplified processor shall provide control data and digital audio over CobraNet®. The networked amplified processor shall provide dual CobraNet ports for redundant network connection. The networked amplified processor shall provide front-panel LED identification of amplifier and card failure, signal present, clip present, fan stuck-rotor fault, heatsink temperature fault, and provide additional software monitoring features including short circuit on output fault. The networked amplified processor shall be rack mountable (3RU) and feature software-configurable signal processing including volume control, filters, compressor/ limiting, delay, speaker equalization, and output sensitivity. The networked amplified processor shall support channel-to-channel and chassis-to-chassis failover. The networked amplified processor shall be CE marked, UL listed and compliant with the RoHS directive. Warranty shall be 5 years. The networked amplified processor shall be an AudiaFUSION.

AUDIA CARD OPTIONS

AEC-2HD

The acoustic echo cancellation shall be a two-channel input card for use with AudiaFLEX/AudiaVOIP hardware. Each input channel shall provide dedicated processing, and include an associated reference point. The acoustic echo cancellation shall utilize on-board DSP, and shall not expend DSP resources of the associated AudiaFLEX/AudiaVOIP hardware. The acoustic echo cancellation shall employ wideband Sona™ AEC technology, producing frequency response up to 20kHz, and shall provide system stability while adapting quickly to changes in the acoustic environment. The acoustic echo cancellation shall additionally provide suppression of steady-state background noises. The acoustic echo cancellation shall incorporate AES48-2005 Grounding & EMC practices, and shall be compliant with the RoHS directive. Warranty shall be 5 years. The acoustic echo cancellation shall be an AEC-2HD Input Card.

IP-2

The mic/line inputs shall be a two-channel input card for use with AudiaFLEX/AudiaVOIP hardware. Each input channel shall provide two balanced analog mic/line inputs on plug-in barrier strip connectors. Software adjustment of individual inputs shall include: gain w/ peak indication; +48V phantom power; mute; level; and signal invert. Analog-to-Digital conversion shall be 24-bit, with a sampling rate of 48kHz. Performance specifications (20Hz~20kHz) shall be: Frequency Response +0/-0.4dB; THD+N < 0.006% (line) < 0.04% (mic); EIN -125dBu; and Dynamic Range > 108dB. The mic/line input card shall incorporate AES48-2005 Grounding & EMC practices, and shall be compliant with the RoHS directive. Warranty shall be 5 years. The mic/line inputs shall be an IP-2 Input Card.

OP-2e

The mic/line outputs shall be a two-channel output card for use with AudiaFLEX/AudiaVOIP hardware. Each output channel shall provide two balanced analog mic/line outputs on plug-in barrier strip connectors. Software adjustment of individual outputs shall include: mute; level; signal invert; and selectable output reference level. Digital-to-Analog conversion shall be 24-bit, with a sampling rate of 48kHz. Performance specifications (20Hz~20kHz) shall be: Frequency Response +0/-0.25dB; THD+N < 0.0035%; and Dynamic Range > 110dB. The mic/line output card shall incorporate AES48-2005 Grounding & EMC practices, and shall be compliant with the RoHS directive. Warranty shall be 5 years. The mic/line outputs shall be an OP-2e Output Card.

AUDIA CARD OPTIONS (CONTINUED)

PA-2

The power amplifier card shall be a two-channel card for use with AudiaFLEX/AudiaVOIP hardware. Each card shall provide two balanced speaker outputs on a plug-in barrier strip connector. Software adjustments of individual outputs shall include: mute, gain, signal invert, clip-limit. Configurable two-channel power ratings shall be 2x5 watts, 2x10 watts, 2x20 watts, 2x30 watts into 8, 6, or 4 ohms. Configurable mono-bridge power rating shall be 1x10 watts, 1x20 watts, 1x40 watts, and 1x60 watts into 8, 6, or 4 ohms. Performance specifications shall be: THD+N <0.35% (20Hz~20kHz); signal-to-noise >89dB; crosstalk <-70dB at 1kHz. The power amplifier shall have load and thermal fault protection. The power amplifier card shall incorporate AES48-2005 Grounding & EMC practices, and shall be compliant with the RoHS directive. Warranty shall be 5 years. The power amplifier card shall be a PA-2 Card.

TI-2

The telephone interface shall be a two-channel card for use with AudiaFLEX/AudiaVOIP hardware, and shall allow direct connection to standard analog telephone lines. Each channel shall provide normal 2-wire to 4-wire 'hybrid' functions, as well as line-echo cancellation, noise suppression, caller ID decoding, ring detection/validation, DTMF tone dialing, DTMF decoding, and call progress tone decoding. The telephone interface shall allow AudiaFLEX/AudiaVOIP to respond to DTMF control commands such as preset recalls from any telephone system. The telephone interface may be used for audio input-only applications such as paging access; or for audio output-only applications such as broadcast feeds and remote system monitoring. The telephone interface card shall incorporate AES48-2005 Grounding & EMC practices, and shall be compliant with the RoHS directive. Warranty shall be 5 years. The telephone interface shall be a TI-2 Card.

VoIP-2

The telephone interface shall be a two-line, modular card for use with AudiaFLEX/AudiaVOIP hardware, and shall provide an interface to Voice over Internet Protocol (VoIP) service. The card shall be designed for installation at the factory or in the field. The card shall be equipped with a cable adapter to a single RJ-45 connector allowing for up to 2 VoIP telephone lines. The operation shall be software configurable and provide integration over Session Initiation Protocol (SIP) v2 or later. The card shall support multiple standardized codecs including G.711μ, G.77A, G.722, G.729AB, and G.723.1. The VoIP interface card shall be compliant with the RoHS directive. Warranty shall be 5 years. The telephone interface shall be a VoIP-2 Card.

AUDIA NETWORKED PAGING STATION

NPS-1

The networked paging station shall be designed exclusively for use with AudiaFLEX and AudiaVOIP systems. The networked paging station shall provide paging audio and control data via CobraNet®, and receive Power over Ethernet (PoE), utilizing a single (CAT5) network cable to a rear panel RJ-45 connector. Use of an external power supply shall be optional. A rotary encoder and LCD screen shall be provided on the front panel for programming and setup. Multiple networked paging stations may be connected to each AudiaFLEX/AudiaVOIP unit, by means of Ethernet switches, in either single-unit or multi-unit systems. Up to 16 simultaneous pages shall be allowed per AudiaFLEX/AudiaVOIP unit. Up to 16 paging priority levels shall be available, including override and lock-out capabilities. Each networked paging station shall have up to 32 programmable button operations assignable, and multiple announcement chime tone options shall be available. Networked paging stations shall be represented as functional blocks within Audia® software, which shall also include dedicated page zone routing blocks, for easy inclusion into system designs. The networked paging station shall be CE marked and shall be compliant with the RoHS directive. The networked paging station shall be a Networked Paging Station-1.

AUDIA EXPANDERS

EXPI

The Input Expander shall provide eight mic/line analog audio inputs on rear panel plug-in barrier strip connectors. Front panel level controls and peak indicators shall be provided for adjustment of the analog audio input signals. Internal analog-to-digital signal conversion shall be 24-bit, with a sample rate of 48kHz. Eight channels of digital audio output shall be provided via CobraNet® on two rear panel RJ-45 connectors. A rotary encoder and LCD screen shall be provided on the front panel for programming and setup. Logic Inputs shall be provided for remote control of CobraNet routing assignments. The Input Expander shall be represented as a functional block within Audia® software, for easy inclusion into system designs. The Input Expander shall also be capable of providing additional analog audio inputs to other CobraNet compliant systems or devices. The Input Expander shall be CE marked with a UL/C-UL listed power source, and shall incorporate AES48-2005 Grounding & EMC practices. The Input Expander shall be compliant with the RoHS directive. Warranty shall be 5 years. The Input Expander shall be AudiaEXPI.

EXPO

The Output Expander shall provide eight channels of digital audio input via CobraNet® on two rear panel RJ-45 connectors. Internal digital-to-analog signal conversion shall be 24-bit, with a sample rate of 48kHz. Eight line-level analog audio outputs shall be provided on rear panel plug-in barrier strip connectors. Front panel level controls shall be provided for adjustment of the analog audio output signals. A rotary encoder and LCD screen shall be provided on the front panel for programming and setup. Logic Inputs shall be provided for remote control of CobraNet routing assignments. The Output Expander shall be represented as a functional block within Audia® software, for easy inclusion into system designs. The Output Expander shall also be capable of providing additional analog audio outputs from other CobraNet compliant systems or devices. The Output Expander shall be CE marked with a UL/C-UL listed power source, and shall incorporate AES48-2005 Grounding & EMC practices. The Output Expander shall be compliant with the RoHS directive. Warranty shall be 5 years. The Output Expander shall be AudiaEXPO.

EXPI-4

The Input Expander shall provide four mic/line analog audio inputs on front-panel plug-in barrier strip connectors. Front-panel level control and peak indicators shall be provided for adjustment of the analog audio input signals. Internal analog-to-digital signal conversion shall be 24-bit, with a sample rate of 48kHz. Four channels of digital audio output shall be provided via CobraNet® on a front-panel RJ-45 connector. A rotary encoder and LCD screen shall be provided on the front-panel for programming and setup. The Input Expander shall be powered by IEEE-standard 802.3af Power over Ethernet (PoE) as a Class 3 device or from an external +18-24VDC @ 13W Class-III power source. The Input Expander shall be represented as a functional block within Audia software, for easy inclusion into system designs. The Input Expander shall also be capable of providing additional analog audio inputs to other CobraNet compliant systems or devices. The Input Expander shall be CE marked, shall incorporate AES48-2005 Grounding & EMC practices. The Input Expander shall be compliant with the RoHS directive. Warranty shall be 5 years. The Input Expander shall be AudiaEXPI-4.

EXPO-4

The Output Expander shall provide four analog audio outputs on front-panel plug-in barrier strip connectors. A front-panel level control shall be provided for adjustment of the analog audio output signal. Internal digital-to-analog signal conversion shall be 24-bit, with a sample rate of 48kHz. Four channels of digital audio inputs shall be provided via CobraNet® on a front-panel RJ-45 connector. A rotary encoder and LCD screen shall be provided on the front-panel for programming and setup. The Output Expander shall be powered by IEEE-standard 802.3af Power over Ethernet (PoE) as a Class 3 device or from an external +18-24VDC @ 13W Class-III power source. The Output Expander shall be represented as a functional block within Audia software, for easy inclusion into system designs. The Output Expander shall also be capable of providing additional analog audio outputs to other CobraNet compliant systems or devices. The Output Expander shall be CE marked, shall incorporate AES48-2005 Grounding & EMC practices. The Output Expander shall be compliant with the RoHS directive. Warranty shall be 5 years. The Output Expander shall be AudiaEXPO-4.

AUDIA EXPANDERS (CONTINUED)

EXPI/O-2

The Input/Output Expander shall provide two mic/line analog audio inputs and two line-level mic pad analog audio outputs on front-panel plug-in barrier strip connectors. A front-panel level control and peak indicators shall be provided for adjustment of the analog audio input signals. A front-panel level control shall be provided for adjustment of the analog audio output signal. Internal analog-to-digital and digital-to-analog signal conversions shall be 24-bit, with a sample rate of 48kHz. The Input/Output Expander shall provide IEC 1938-compliant 48VDC Phantom Power on each input. Two channels of digital audio output and two channels of digital audio input shall be provided via CobraNet® on a front-panel RJ-45 connector. A rotary encoder and LCD screen shall be provided on the front panel for level setting, programming and setup. The Input/Output Expander shall be represented as a functional block within Audia® software, for easy inclusion into system designs. The Input/Output Expander shall also be capable of providing additional analog audio inputs and outputs to other CobraNet compliant systems or devices. The Input/Output expander shall be powered by IEEE-standard 802.3af Power over Ethernet (PoE) as a Class 3 device or from an external +18-24VDC @ 13W Class-III power source. The Input/Output Expander shall be CE marked and shall incorporate AES48-2005 Grounding & EMC practices. The Input/Output Expander shall be compliant with the RoHS directive. Warranty shall be 5 years. The Input/Output Expander shall be AudiaEXPI/O-2.

AUDIA SOFTWARE

daVinci™

The control software program shall allow the creation and use of customized computer control screens with Audia® and Nexia® digital audio systems. The software shall allow function and appearance of the graphic control interface to be tailored to the exact needs of the user. Individual or grouped sets of controls may be placed and assigned to specific system functions, or component objects may be copied directly from the Audia or Nexia system design file into the control software, resulting in completely pre-assigned control surfaces. An array of drawing tools shall be provided for extensive graphic manipulation of controls, backgrounds, and labeling. Control screens may be created with the ability to easily navigate between multiple pages of operation. Once created, a custom control file may be downloaded into the Audia or Nexia system, where it can then be accessed by multiple network computers which are running the control software. The control software shall not alter the system design itself, and control access to the system shall be password protected. System control may be provided using a combination of the control software, hardware control panels, and third-party RS-232, simultaneously. Minimum recommended system requirements shall be: Windows® 7/8; Pentium® 4-1.5; 256MB RAM; 1280x1024 screen resolution. The control software program shall be daVinci™.

CONTROLLERS

RED-1
The control panel shall provide programmable remote control of volume and selection functions for Biamp's Audia® and Nexia® products. The control shall be a Power over Ethernet (PoE) network appliance with a graphical display and a capacitive touch scroll wheel for menu navigation and selection. The connector shall be made using a standard RJ-45 or IDC connector. The control shall be a surface-mounted device and shall not require any type of electrical box be present for mounting. The control panel shall be made from white PC/ABS material with UV protection additive. Warranty shall be 5 years. The control panel shall be a Biamp Remote Ethernet Device 1.

RED-1F
The control panel shall provide programmable remote control of volume and selection functions for Biamp's Audia® and Nexia® products. The control shall be a Power over Ethernet (PoE) network appliance with a graphical display and a capacitive touch scroll wheel for menu navigation and selection. The connector shall be made using a standard RJ-45 or IDC connector. The control shall be a flush-mounted device. The control panel shall be made from white PC/ABS material with UV protection additive. Warranty shall be 5 years. The control panel shall be a Biamp Remote Ethernet Device Flush Mount.

Volume 8
The control panel shall provide a push-button rotary encoder and LED indicators, mounted on a single-gang brushed aluminum electrical plate. The control panel shall fit most standard US single-gang back-boxes (available separately). The control panel shall provide programmable remote control of volume functions for Biamp's Audia® or Nexia® products. The control panel shall be compliant with the RoHS directive. Warranty shall be 5 years. The control panel shall be a Biamp Volume 8.

Select 8
The control panel shall provide a push-button rotary encoder and LED indicators, mounted on a single-gang brushed aluminum electrical plate. The control panel shall fit most standard US single-gang back-boxes (available separately). The control panel shall provide programmable remote control of selection functions for Biamp's Audia® or Nexia® products. The control panel shall be compliant with the RoHS directive. Warranty shall be 5 years. The control panel shall be a Biamp Select 8.

Volume/Select 8
The control panel shall provide two push-button rotary encoders and LED indicators, mounted on a two-gang brushed-aluminum electrical plate. The control panel shall fit most standard US double-gang back-boxes (available separately). The control panel shall provide programmable remote control of both volume and selection functions for Biamp's Audia® or Nexia® products. The control panel shall be compliant with the RoHS directive. Warranty shall be 5 years. The control panel shall be a Biamp Volume / Select 8.

Logic Box

The logic control interface shall provide 20 logic connections, which shall be programmable in any combination of inputs/outputs. The logic control interface shall include key-hole mounting, and shall require no local power source. The logic control interface shall provide programmable remote control of internal functions and external circuitry for Biamp's Audia® or Nexia® products. The logic control interface shall be compliant with the RoHS directive. Warranty shall be 5 years. The logic control interface shall be a Biamp Logic Box.

Remote Control Bus Hub

The control bus hub shall provide eight parallel ports, on 5-wire plug-in barrier-strip connectors, for connection of remote control devices to Audia® or Nexia® systems. The control bus hub shall allow multiple daisy-chain branches on a control network. Each branch shall be capable of accepting any combination of Audia/Nexia control types, including Volume 8, Select 8, Volume/Select 8, Logic Box, and Voltage Control Box. The control bus hub shall allow maximum cable length of 1000′ to be determined as only the sum of the two longest branches in the network. The control bus hub shall include key-hole mounting, and shall require no local power source. The control bus hub shall be compliant with the RoHS directive. Warranty shall be 5 years. The control bus hub shall be a Biamp Remote Control Bus Hub.

Voltage Control Box

The control interface shall provide four analog potentiometer inputs, plus four logic connections programmable in any combination of inputs/outputs. The control interface shall include key-hole mounting, and shall require no local power source. The control interface shall provide programmable remote control of internal functions and external circuitry for Biamp's Audia® or Nexia® products. The control interface shall be compliant with the RoHS directive. Warranty shall be 5 years. The control interface shall be a Biamp Voltage Control Box.

AMPLIFIERS

MCA Series Amplifiers

The multi-channel amplifier shall provide eight individual channels of power amplification, in two different models. One model shall deliver 50 watts/channel into 4 ohms, with channels bridgeable in pairs to provide 100 watts into 8 ohms. The other model shall deliver 150 watts/channel into 4 ohms, with channels bridgeable in pairs to provide 300 watts into 8 ohms. Channel inputs shall be line-level, with connections provided on plug-in barrier strips. Channel amplifier outputs shall be provided on standard screw terminals.

Each channel shall include LED indication of signal presence, output clipping, over-temperature condition, and output fault condition. Each channel shall include complete self re-setting protection against short-circuit, improper load, and over-temperature conditions. Input level controls & high-pass filter switches shall be provided on each channel. Internally mounted transformers for distributed speaker systems shall be available as a user-installed option, for both individual channel & bridged-pair outputs.

Frequency Response shall be +0/-1dB, THD+N shall be less than 0.2%, and S/N Ratio shall be greater than 85dB (20Hz~20kHz @ rated power). Power Consumption shall be less than 900 Watts (50 watt/channel model) or 1800 Watts (150 watt/channel model). The amplifier shall be CE marked, UL / C-UL listed, and shall incorporate AES48-2005 Grounding & EMC practices. The mixer shall be compliant with the RoHS directive. Warranty shall be 5 years.
The 50 Watt / channel model shall be a Biamp MCA 8050.
The 150 Watt / channel model shall be a Biamp MCA 8150.

MPA250 Amplifier

The power amplifier shall provide single channel, reliable continuous power of 250 Watts at a 4 ohm direct output. This same 250 Watts shall also be available, via an internal transformer, at 8 ohm, 70V, 25V, & 25V-CT outputs. Output connections shall be on rear panel screw terminals. Input connection shall be on rear panel plug-in barrier strip. Balanced or unbalanced input shall be selectable via rear panel switch. Input sensitivity, of either 775mV or 300mV, shall be selectable via rear panel switch, and a screw-driver adjustable level control shall be included. A high-pass filter of 12dB/octave @ 125Hz shall be selectable via rear panel switch. Short-circuit and thermal protection circuitry shall be provided, with automatic reset. Signal/peak and temp/fault indicators shall be provided on both front and rear panels. Amplifier cooling shall be by means of an internal variable speed fan, which shall require no filter or associated maintenance.

Frequency Response shall be +0/-1dB from 20Hz to 20kHz. THD shall be less than 0.2% from 20Hz to 20kHz at rated power to the 4 ohm direct output, and less than 1.0% from 100Hz to 15kHz at rated power to any transformer output. Signal-to-Noise Ratio shall be greater than 90dB from 20Hz to 20kHz at rated power to the 4 ohm direct output. Power consumption shall be less than 900 Watts. Dimensions shall be 3.5 inches (2 rack spaces) high, 19 inches wide, and 8.5 inches deep. Weight shall be 23 lbs. The amplifier shall be UL/C-UL listed and shall incorporate AES48-2005 Grounding & EMC practices. The amplifier shall be compliant with the RoHS directive. Warranty shall be 5 years.
The amplifier shall be a Biamp MPA250.

MICROPHONES

CM1

The microphone shall be of the condenser type with a modular threaded capsule available in cardioid and supercardioid polar patterns. The microphone shall be protected from RF interference. The microphone shall have a fully integrated preamp circuitry thereby eliminating the need for a remote preamplifier module. The microphone shall operate on 18-52 Volts DC and the nominal output impedance shall be equal to 150 ohms at 1 kHz. The microphone shall have a sensitivity of 37 mV / Pa at 1 kHz. The microphone shall have a maximum SPL level of ≥130 dB with THD of 0.5%. The microphone shall be machined out of brass and the dimensions shall be 12 mm in diameter by 54 mm in length. The microphone shall be the Biamp CM1.