

# FreeSpace® DXA 2120 digital mixer/amplifier

# BOSE®



## Product Overview

The Bose® FreeSpace® DXA 2120 digital mixer/amplifier features a 6-in by 2-out design that provides signal processing, mixing, routing, paging and two-channel amplification for installed applications. It offers three versatile operating modes and is easily configured using the controls on the front panel. No external computer is required.

## Product Information

The DXA 2120 digital mixer/amplifier can be used in both low- and high-impedance systems. Each of the two output channels delivers 120 watts at 4 ohms or 100 watts for 70/100-volt applications. An auxiliary output provides a line-level signal for system expansion.

The DXA 2120 digital mixer/amplifier has six inputs – four mic/line inputs, one page input and one direct input that overrides all other sources when a signal is detected. The four mic/line inputs connect to sources via 3-pin Euroblock connectors or dual RCA jacks.

Three operating modes provide greater flexibility for installed music or speech applications:

**Mixer Mode** – Each input can be routed to every output simultaneously. Volume for each input can be controlled independently, or a master volume can control both outputs simultaneously.

**Dual Mono Select Mode** – Two input sources are available for each output channel. Volume control and source selection are available in each zone.

**Stereo Select Mode** – Two selectable stereo sources can be played in stereo in a single output zone. Volume control and source selection are available in the zone.

The auxiliary output can be used with all three modes of operation.

Two user interfaces, volume control and volume control with A/B select, are available for operation from remote locations.

## Key Features

- **Six inputs:** four mic/line inputs with choice of balanced Euroblock or unbalanced RCA connectors, one page input and one direct input
- **Two powered outputs** that can operate at high or low impedance: 2 x 120 W at 4 ohms, 2 x 65 W at 8 ohms, or 2 x 100 W at 70/100V
- **Three operating modes** for greater flexibility in installed music or speech applications: Mixer Mode, Dual Mono Select Mode, and Stereo Select Mode
- **Easy setup** and control via onboard controls – no computer needed
- **DSP includes** loudspeaker EQs and dynamic EQ functions engineered specifically for Bose loudspeakers
- **Opti-voice®** paging provides a smooth transition between music and announcements
- **24-volt DC** backup power connection for added reliability and integration onto fire and evacuation systems

## Applications

Designed for a wide range of applications, including:

- Conference centers
- Retail stores
- Restaurants and bars
- Hotels
- Lobbies and conference rooms

# FreeSpace<sup>®</sup> DXA 2120

## digital mixer/amplifier



### Technical Specifications

TECHNICAL DATA SHEET

Power Rating																													
Amplifier Power	2 x 120 W at 4 ohms , 2 x 65 W at 8 ohms, or 2 x 100 W at 70/100V																												
Audio Performance Specifications																													
Frequency Response	40 Hz - 16 kHz (+0/-3 dB)																												
Signal-to-Noise Ratio	75 dB (below rated power, A-weighted)																												
THD	≤0.5 % (at full rated power)																												
Channel Separation (Crosstalk)	≤-60 dBV (below rated power, 1 kHz)																												
Dynamic Range	80 dB																												
Integrated DSP																													
A/D and D/A Converters	24-bit																												
Sample Rate	44.1 kHz																												
Audio Inputs																													
Input Channels	6 channels																												
	<table border="1"> <thead> <tr> <th>Mic/Line Inputs</th> <th>Line Inputs</th> <th>Page Inputs</th> <th>Direct Inputs</th> </tr> </thead> <tbody> <tr> <td>Inputs</td> <td>4 balanced</td> <td>4 unbalanced</td> <td>1 balanced</td> </tr> <tr> <td>Connectors, Input</td> <td>3-pin Euroblock</td> <td>Dual RCA (summed to mono)</td> <td>4-pin Euroblock</td> </tr> <tr> <td>Input Range</td> <td>20 Hz - 20 kHz</td> <td>20 Hz - 20 kHz</td> <td>20 Hz - 20 kHz</td> </tr> <tr> <td>Input Impedance</td> <td>Mic 2 kΩ / Line 25 kΩ</td> <td>10 kΩ</td> <td>400 Ω</td> </tr> <tr> <td>Maximum Input Level</td> <td>Mic -20 dBu / Line 10 dBu</td> <td>+10 dBu</td> <td>-30 dBu</td> </tr> <tr> <td>Equivalent Input Noise</td> <td>-122 dB (A-weighted/ 20 Hz - 20 kHz)</td> <td>N/A</td> <td>-122 dB (A-weighted/ 20 Hz - 20 kHz)</td> </tr> </tbody> </table>	Mic/Line Inputs	Line Inputs	Page Inputs	Direct Inputs	Inputs	4 balanced	4 unbalanced	1 balanced	Connectors, Input	3-pin Euroblock	Dual RCA (summed to mono)	4-pin Euroblock	Input Range	20 Hz - 20 kHz	20 Hz - 20 kHz	20 Hz - 20 kHz	Input Impedance	Mic 2 kΩ / Line 25 kΩ	10 kΩ	400 Ω	Maximum Input Level	Mic -20 dBu / Line 10 dBu	+10 dBu	-30 dBu	Equivalent Input Noise	-122 dB (A-weighted/ 20 Hz - 20 kHz)	N/A	-122 dB (A-weighted/ 20 Hz - 20 kHz)
Mic/Line Inputs	Line Inputs	Page Inputs	Direct Inputs																										
Inputs	4 balanced	4 unbalanced	1 balanced																										
Connectors, Input	3-pin Euroblock	Dual RCA (summed to mono)	4-pin Euroblock																										
Input Range	20 Hz - 20 kHz	20 Hz - 20 kHz	20 Hz - 20 kHz																										
Input Impedance	Mic 2 kΩ / Line 25 kΩ	10 kΩ	400 Ω																										
Maximum Input Level	Mic -20 dBu / Line 10 dBu	+10 dBu	-30 dBu																										
Equivalent Input Noise	-122 dB (A-weighted/ 20 Hz - 20 kHz)	N/A	-122 dB (A-weighted/ 20 Hz - 20 kHz)																										
Audio Outputs																													
Output Channels	2 channels																												
	<table border="1"> <thead> <tr> <th>Amplifier Outputs</th> <th>Auxiliary Output</th> </tr> </thead> <tbody> <tr> <td>Outputs</td> <td>2</td> </tr> <tr> <td>Connectors, Output</td> <td>5-terminal inverted Euroblock</td> </tr> <tr> <td>Nominal Load</td> <td>50 Ω @ 70 V, 100 Ω @ 100 V</td> </tr> <tr> <td>Output Impedance</td> <td>4 Ω</td> </tr> <tr> <td>Maximum Output Level</td> <td>N/A</td> </tr> </tbody> </table>	Amplifier Outputs	Auxiliary Output	Outputs	2	Connectors, Output	5-terminal inverted Euroblock	Nominal Load	50 Ω @ 70 V, 100 Ω @ 100 V	Output Impedance	4 Ω	Maximum Output Level	N/A																
Amplifier Outputs	Auxiliary Output																												
Outputs	2																												
Connectors, Output	5-terminal inverted Euroblock																												
Nominal Load	50 Ω @ 70 V, 100 Ω @ 100 V																												
Output Impedance	4 Ω																												
Maximum Output Level	N/A																												
Indicators and Controls																													
LED Status Indicators	Blue LED: power, Green LED: signal present, Red LED: clip																												
Electrical Specifications																													
Mains Voltage	100 V version: 100 VAC; 50/60 Hz 120 V/220-240 V version: 120 V/220-240 VAC; 50/60 Hz																												
AC Power Consumption	Idle: 39 W, Active: 350 W																												
Maximum Inrush Current	23.2 A @ 230 V ~ 50 Hz 33.2 A @ 120 V ~ 60 Hz																												
Overload Protection	T6.3AL/250 V (100 V and 120 V) or T3.15AL/250 V (220-240 V)																												
DC Backup Power/Connector	+24 V (±1 %) Connector 2-terminal barrier strip																												
Input Voltage Level	+24 V																												
Minimum Input Power	50 W																												
Maximum Input Power	150 W																												
Physical																													
Dimensions	3.5" H x 16.5" W x 13.8" D (90 mm x 420 mm x 349 mm)																												
Net Weight	32 lb (14.4 kg)																												
Shipping Weight	40 lb (18.1 kg)																												
Operating Temperature	32 °F - 104 °F (0 °C - 40 °C)																												
Storage Temperature	-40 °F - 158 °F (-40 °C - 70 °C)																												
Humidity	40 % - 90 % relative humidity																												
General																													
Communication Port	RS-232 serial port																												

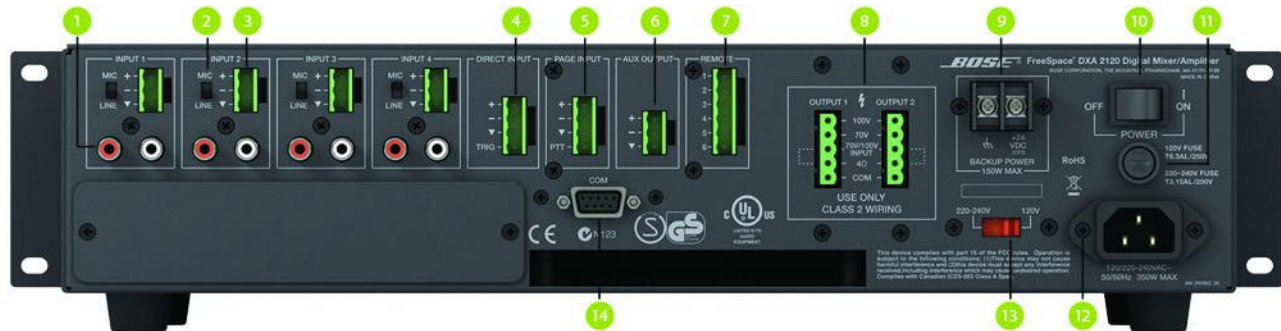
# FreeSpace® DXA 2120 digital mixer/amplifier

# BOSE®

TECHNICAL DATA SHEET



1. **LCD panel** – Displays menu selections for configuring and viewing system settings.
2. **Directional buttons** – Navigates system menus and setting options shown on the LCD.
3. **SELECT button** – Confirms selections and settings in the system menus.
4. **POWER LED** – Blue light indicates the system is on. No light when unit is off.
5. **SIGNAL and CLIP LEDs** – Shows signal states for Inputs 1 – 4.
6. **Gain knobs** – Adjusts gain for INPUT 1 – INPUT 4.
7. **Enclosure door** – Conceals system controls.
8. **BASS and TREBLE knobs** – Adjusts tonal balance for OUTPUT 1 and OUTPUT 2.
9. **GAIN knobs** – Adjusts gain for OUTPUT 1, OUTPUT 2 and PAGE.
10. **SIGNAL and CLIP LEDs** – Shows signal states for OUTPUT 1, OUTPUT 2, PAGE and DIRECT.



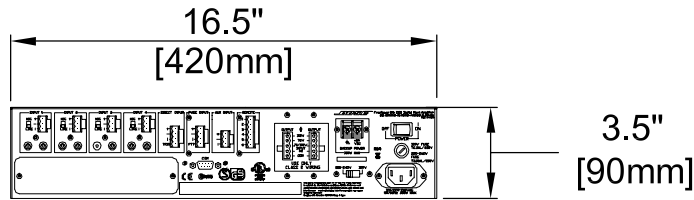
1. **LINE INPUTS** – Two unbalanced RCA audio jacks per input (summed to mono).
2. **MIC/LINE switch** – Adjusts for the proper signal level being used with the four Euroblock input connectors.
3. **MIC/LINE INPUTS** – Balanced Euroblock input jacks. One per input.
4. **DIRECT INPUT** – Balanced override input jack.
5. **PAGE INPUT** – Balanced audio input jack.
6. **AUX OUTPUT** – Fixed line-level signal output for other amplified equipment.
7. **REMOTE** – Input jack for volume-only control and volume control with A/B select user interfaces.
8. **OUTPUTS 1 and 2** – Speaker connections for two powered outputs (70V, 100V or 4-ohm operation).
9. **BACKUP POWER** – For connection to backup power source.
10. **POWER SWITCH** – ON/OFF AC power.
11. **FUSE** – T6.3AL/250V (100V and 120V) or T3.15AL/250V (220-240V).
12. **AC mains line cord jack** – AC line voltage input.
13. **120V/220-240V switch** – Switches between 120V and 220-240V AC input voltage. This switch is not provided on 100V AC input voltage models.
14. **COM** – RS-232 serial port is reserved for system updates.

# FreeSpace® DXA 2120

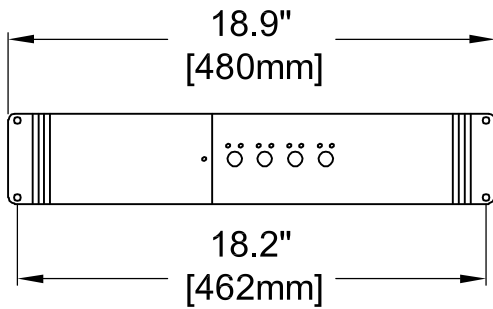
digital mixer/amplifier



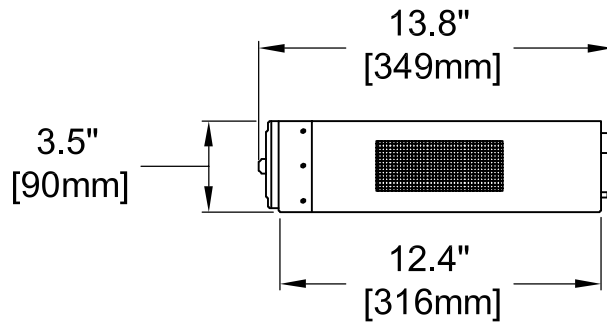
## Mechanical Diagrams



Back View



Front View



Right View

TECHNICAL DATA SHEET

# FreeSpace® DXA 2120 digital mixer/amplifier



## Architects' and Engineers' Specifications

The unit shall be a digital mixer/amplifier. The unit shall use a digital signal processing architecture running at 44.1 kHz sample rate. The frequency response shall be from 40 Hz to 16 kHz (+0/-3 dB). The dynamic range shall be 80 dB (typical) 40 Hz to 16 kHz. The signal-to-noise ratio shall be 75 dB or greater (A-weighted).

The unit shall have mixing and routing capabilities as well as amplification. The unit's DSP shall feature selectable Bose® loudspeaker EQs as well as dynamic equalization.

The input section shall have four mic/line inputs, one direct input and one page input. The mic/line inputs shall have both 3-pin Euroblock connectors for balanced mic/line inputs and dual RCA jacks (summed to mono) for unbalanced line inputs. The direct and page inputs shall have 4-pin Euroblock connectors for balanced inputs.

The page input shall be operated in PTT (push to talk) or Auto mode and provide automatic ducking for announcements.

The direct input shall automatically override all other inputs when a signal is detected for emergency signaling purposes. The output section shall feature two powered loudspeaker outputs with 5-terminal inverted Euroblock connectors. The unit will have an auxiliary output with a 3-pin Euroblock connector.

The amplifier section shall contain two powered outputs for high or low impedance: 2 x 120 watts at 4 ohms, 2 x 65 watts at 8 ohms, or 2 x 100 watts at 70/100 volts. The THD shall be less than 0.5 % @ full rated power.

The unit shall feature three different modes of operation: Mixer Mode, Stereo Select Mode and Dual Mono Select Mode.

The 100V variant will operate at 100V AC. A second variant will be able to operate at 120 V/220 VAC-240 VAC; there will be an AC input voltage switch on the unit. The unit shall consume AC power of 40 watts or less at idle, 350 watts at maximum continuous rated power and also will have a 2-terminal barrier strip for connecting a 24 volts DC backup power supply.

The unit will have a remote input with a 6-pin Euroblock connector for using one or two volume controls and/or volume control with A/B select user interfaces.

The unit shall be configurable via the onboard controls and feature a "lockout" feature to prevent unwanted system changes. An RS-232 COM port will be available for system updates.

The unit shall be the Bose® FreeSpace® DXA 2120 digital mixer/amplifier.

## Safety and Regulatory Compliance

The 120V/220-240V AC variant (PC 040753, PC 040754, PC 040755, PC 040756) of the FreeSpace DXA 2120 digital mixer/amplifier complies with CE requirements, is UL Listed according to UL60065 (7th edition) and CAN/CSA C22.2 No. 60065-03; CB approved, according to IEC60065 (7th edition), including group and national differences; GS approved, according to EN60065 (7th edition). It also complies with FCC Part 15B Class A (2003), EN55103-1 (1997), EN55103-2 (1996), and CISPR13 (2003) requirements. The 100V variant (PC 040742) of the DXA 2120 digital mixer/amplifier is PSE compliant.

## Additional Notes

### Amplifier Power

A single channel is driven to full power with the nominal load impedance (120W / 4, 100W / 70V / 49, 100W / 100V / 98). Output power is measured using a 1 kHz sine wave with a THD of less than 0.5%, as measured at the amplifier output.

### Dynamic Range

The output of the amplifier is connected to the rated load impedance, and the input and output gains are set to maximum. A dB-calibrated voltmeter is connected to the amplifier's output through an A-weighting filter (in accordance with IEC 60651). A 1 kHz signal is connected to one of the line inputs, and the level is adjusted to achieve the amplifier's rated output power. The voltmeter is then zero-referenced. The signal source is removed, and the line input is shorted. The dB-calibrated voltmeter now reads the absolute dynamic range of the system.

## Product Codes

120V – US	PC 040753
230V – EU	PC 040754
230V – UK	PC 040755
240V – AU	PC 040756
100V – Japan	PC 040742

## Accessories

Volume control user interface	PC 041966
Volume control with A/B switch user interface	PC 041967