

FreeSpace® 4400 business music system



Product Overview

The Bose® FreeSpace® 4400 business music system is an integrated four-zone system providing signal processing, routing and amplification for installed business music applications. The system delivers lifelike music and intelligible pages in up to four separate areas. System setup and configuration are accomplished using a PC and the included FreeSpace 4400 Installer™ software.

Product Information

The FreeSpace 4400 business music system has five audio inputs – two dedicated line-level inputs, one mic/line input, one page/mic/line input and one dedicated direct input. The line-level inputs feature dual RCA jacks, and the mic/line input features a 3-pin Euroblock connector. The page/mic/line and the direct inputs feature 4-pin Euroblock connectors for PTT (push-to-talk) capability.

Onboard DSP provides routing and signal processing for up to four output zones. Any input source may be assigned to any of the four output zones. Each output zone supports Auto Volume, Dynamic Equalization, Room EQ, Bose Loudspeaker EQ and Output Gain functions.

A proprietary Power Sharing amplifier distributes up to 400 watts of system power across the four output zones. Each output zone may draw as little as 1 watt of power up to as much as 400 watts. The amount of power delivered to an output zone is dependent on the quantity and transformer tap setting of loudspeakers that are connected. The amplifier can be configured for either 70 V or 100 V constant voltage systems.

Wall-mounted AVM (Auto Volume/Mute) or Page user interfaces allow for easy control of system functions such as paging, volume and source selection, allowing the owner to control system operation.

FreeSpace 4400 Installer™ software is included with the FreeSpace 4400 business music system and allows designers and installers to create project files for the setup, configuration and servicing of FreeSpace 4400 business music systems.

Key Features

- **Proprietary and patented** technologies, designed specifically for business music environments, can be configured with the FreeSpace 4400 Installer software and include Auto Volume, Scheduling, System diagnostics, Multi-zone Opti-voice® paging, Dynamic equalization and Opti-source® level management.
- **Power sharing** amplifier dynamically distributes 400 W of system power across the four output zones
- **Auto Volume** offers automatic control of individual zone volume. Volume levels are adjusted to compensate for changes in background noise, according to the system settings
- **Scheduling** allows system ON/OFF, zone volume, mute, Auto Volume and source change events to be programmed. Up to 64 events may be programmed to occur on specific days and times
- **System diagnostics** include an error log. The flash memory module is easy to replace and contains complete hardware configuration files
- **Opti-voice®** paging provides a smooth transition between the music and page signals
- **Dynamic equalization** provides deep, rich bass at all listening levels
- **Opti-source®** level management monitors the input level of up to four sources. Source levels are continually adjusted to maintain a consistent volume level among different sources
- **Each output zone** can be paged independently
- **Bose loudspeaker equalization curves** are pre-loaded for easy creation of FreeSpace systems with Bose loudspeakers

Applications

Designed for a wide range of applications, including:

- Restaurants and bars
- Shopping centers
- Retail stores
- Resorts and hospitality venues
- Conference centers

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Technical Specifications

Power Rating				
Amplifier Power	EIA (1 kHz, 1 % THD): 440 W; FTC Continuous Average: 400 W			
Audio Performance Specifications				
Frequency Response	20 Hz - 20 kHz (+/- 1 dB)			
Signal-to-Noise Ratio	90 dB (below rated power, A-weighted)			
THD	<1.0 % (at full rated power)			
Channel Separation (Crosstalk)	>70 dB (below rated power, 1 kHz)			
Common Mode Rejection	50 dB (20 Hz to 1 kHz)			
Integrated DSP				
A/D and D/A Converters	24-bit, 128x oversampling			
Sample Rate	44.1 kHz			
Audio Inputs				
Input Channels	5 channels			
	Mic/Line Inputs	Line Inputs	Mic/Line/Page Inputs	Direct Inputs
Inputs	1 balanced	2 unbalanced	1 balanced	1 balanced
Connectors, Input	3-pin Euroblock	Dual RCA (summed to mono)	4-pin Euroblock	4-pin Euroblock
Input Range	-60 dBV to +17 dBV	-30 dBV to +17 dBV	-60 dBV to +17 dBV	0 dBV
Input Impedance	1.36 kΩ	25 kΩ	1.36 kΩ	10 kΩ
Maximum Input Level	+17 dBV	+17 dBV	+17 dBV	0 dBV
Auto Volume Sensing Mics				
Input	4 Unbalanced			
Connectors	2-pin Euroblock			
Audio Outputs				
Output Channels	4 channels			
	Amplifier Outputs	Line Output	Music On Hold Output	
Outputs	4	1 Balanced	1 Balanced	
Connectors, Output	2-pin inverted Euroblock	4-pin Euroblock	2-pin Euroblock	
Nominal Load	12.5 Ω @ 70 V, 25 Ω @ 100 V	N/A	N/A	
Output Impedance	N/A	300 Ω	400 Ω	
Maximum Output Level	N/A	+11 dBV (70 V), +14 dBV (100 V)	+15 dBV	
Electrical Specifications				
AC Power Consumption	Idle: 60 W, Active: 300 W maximum, with program material			
Physical				
Dimensions	5.1" H x 16.5" W x 16.0" D (130 mm x 420 mm x 406 mm)			
Net Weight	31 lb (14.1 kg)			
Shipping Weight	41 lb (18.6 kg)			
Operating Temperature	32 °F - 122 °F (0 °C - 50 °C)			
Humidity	85 % max relative humidity			

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1. **AMP OUTPUTS** – LEDs indicate the operating status of the four amplifier output channels.
2. **SYSTEM STATUS** – Indicates the operating condition of the unit.
3. **STANDBY** – LED indicates if unit is in standby or active
4. **DIRECT INPUT** – LED indicates the operating condition of the source connected to the DIRECT IN/CONTROL input
5. **AUDIO SOURCES** – LEDs indicate the operating status of the four input sources.
1. **AUDIO INPUTS: LINE 1/LINE 2** – Unbalanced audio inputs.
2. **AUX MIC/LINE 3** – Balanced audio input with phantom power.
3. **PAGE/MIC/LINE 4** – Balanced audio input with phantom power.
4. **DIRECT IN/CONTROL** – Balanced (DSP bypassed, full amplifier gain) audio input.
5. **WALL PLATE CONNECTIONS** – Input connectors for AVM 1-Zone, AVM 2-Zone user interface or Page user interfaces.
6. **SENSE MICROPHONES** – Input connectors for Auto Volume sensing microphones.
7. **RS-232** – Communications port for a PC running FreeSpace® 4400 Installer™ software.
8. **REMOTE ON/OFF** – Input connector for a remote STANDBY switch.
9. **ZONE 4 LINE OUT** – A line-level output that duplicates the program material from LINE 4.
10. **MUSIC ON HOLD/PBX OUT** – An audio output used to provide music input to a PBX system.
11. **ZONE OUTPUTS 1/2/3/4** – Loudspeaker connections for four zones.
12. **OUTPUT VOLTAGE** – Sets the ZONE OUTPUT lines to 70/100V.
13. **POWER SWITCH** – ON/OFF AC power.
14. **FUSE** – T6.3 (6,3) A L 250V (100/120V) or T3.15 (3,15) A L 250V (220-240V).
15. **AC MAINS LINE CORD JACK** – AC line voltage input.
16. **INPUT VOLTAGE** – Switches need to be configured for proper input voltage.

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Architects' and Engineers' Specifications

The unit shall be an integrated signal processing and amplification system. The system shall use a digital signal processing architecture running at 44.1 kHz sample rate. The frequency response shall be from 20 Hz to 20 kHz, ± 1 dB. The signal-to-noise ratio shall be 90 dB or greater (A-weighted).

The power amplification section shall deliver a maximum of 400 watts with less than 1.0 % THD. Channel separation shall be >70 dB at 1 kHz. The system shall consume AC power of 60 watts or less at idle, 300 watts at maximum continuous rated power.

The system shall perform the following processing functions:

- Input gain
- Input leveling
- Source routing
- Paging with adjustable ducking depth, hold and release time
- Automatic Volume control for each output zone
- Music on hold
- Three-band graphic equalization per zone
- Loudspeaker EQ for Bose® loudspeakers
- Output gain with mute
- Loudspeaker protection limiting
- System diagnostics

The system shall be the Bose® FreeSpace® 4400 business music system.

Safety and Regulatory Compliance

The FreeSpace® 4400 business music system complies with CE requirements, is cUL 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), C-Tick and PSE compliant. This Class A digital apparatus complies with Canadian ICES-003, FCC Part 15B Class A (2006), EN55103-1 (1996) and EN55103-2 (1996) requirements. When configured for 100V input voltage operation, the FreeSpace 4400 business music system meets CISPR13 (2003) requirements.

FreeSpace 4400 Installer Software

FreeSpace® 4400 Installer™ software is included with the FreeSpace 4400 business music system and is required for system setup and configuration.

Hardware:

- Minimum 200 MHz Pentium-based PC
- 128MB of free RAM
- 4x CD-ROM
- 90MB free internal hard disk space
- RS-232 port or USB to RS-232 adapter

Operating Systems:

- Windows® 98, Windows NT 4.0, Windows 2000, Windows ME, Windows XP

Display:

- 800 x 600 resolution, 16-bit color

Additional Notes

Amplifier Power

EIA Power – With the amplifier operating in 70 V or 100 V mode, a single channel is driven to full power with the minimum load impedance. Output power is measured using a 1 kHz sine wave with 1% THD, as measured at the amplifier output. FTC Continuous – With the amplifier operating in 70 V mode, any combination of channels are driven to full power with the minimum load impedance. Output power is measured using test signals between 20 Hz and 12 kHz with 1% THD, as measured at the amplifier output.

Signal-to-Noise Ratio

The output of the amplifier is connected to the rated load impedance with a unity gain of a frequency of 1 kHz. 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 signal source is removed, and the line input is shorted. The dB-calibrated voltmeter now reads the A-weighted output noise level.

Product Codes

120V – US	PC 042346
230V – EU	PC 042347
230V – UK	PC 042349
240V – AU	PC 042350
100V – Japan	PC 042348

Accessories

AVM 1-Zone User Interface	PC 042351
AVM 2-Zone User Interface	PC 042352
System Page User Interface	PC 042353