TECHNICAL DATA

ControlSpace ESP-1240A engineered sound processor

PROFESSIONAL

Product Overview

An open-architecture DSP, the Bose ControlSpace ESP-1240A engineered sound processor is designed for a wide variety of applications — from small, self-contained projects to large, networked systems. It features 12x4 analog audio I/O, a Bose AmpLink output, and advanced digital signal processing with 48 kHz/24-bit audio conversion. Engineered for precise performance, the ControlSpace ESP-1240A also features low-latency and ultra-low noise operation.

Applications

Designed for a wide range of applications, including:

- Auditoriums
- Places of worship
- Resorts and hospitality venues
- Retail stores
- Educational institutions

Key Features

- **High-quality analog circuitry** offers both mic and line-level I/O, operates with ultra-low noise and 115 dB dynamic range.
- **Advanced digital signal processing** supports audio at 48 kHz sample rate/24-bit, uses a floating-point open architecture DSP, and operates at low latencies for sound system precision.
- **Integrated AmpLink connection** uses standard CAT 5 cables to send up to 8 channels of low-latency, uncompressed digital audio to compatible Bose amplifiers.
- **Bose ControlSpace Designer software** enables a large set of signal processing modules, such as automatic mic mixing, multiband graphic and parametric EQs, Bose loudspeaker libraries, signal generators, routers, mixers, AGCs, duckers, gates, compressors, source selectors, and delays.
- **A variety of control options** — ControlSpace ESP products are compatible with the programmable Bose CC-64 and CC-16 controllers, ControlCenter zone controllers, and ControlSpace Remote clients.
- **Supports industry-standard control systems** using a comprehensive serial protocol through onboard RS-232 and Ethernet ports, with available drivers for AMX and Crestron-based systems

ControlSpace ESP-1240A engineered sound processor

BOSE PROFESSIONAL

Technical Specifications

INTEGRATED DSP	
Signal Processor/CPU	32-bit fixed/floating-point DSP + ARM, 456 MHz
Maximum Calculation	3.6 GIPS / 2.7 GFLOPS
Delay	43 s
Audio Latency	860 µs (analog in to analog out)
A/D and D/A Converters	24-bit
Sample Rate	48 kHz

AUDIO PERFORMANCE SPECIFICATIONS	
Frequency Response	20 Hz - 20 kHz (+0.3 dB/-0.1 dB)
THD+N	< 0.002 % at +4 dBu (A-weighted/20 Hz – 20 kHz)
Channel Separation (Crosstalk)	< -105 dB at +4 dBu input and output level, 1 kHz
Dynamic Range	> 115 dB A-weighted 20 Hz – 20 kHz, analog through

AUDIO INPUTS	
Input Channels	12 analog (balanced, mic/line level)
Connectors, Input	3.81 mm Phoenix Contact®, 6-pin
Input Impedance	12 kΩ @ 1 kHz (with or without phantom power active)
Maximum Input Level	+24 dBu
Equivalent Input Noise	<-119 dBu (22 - 20 kHz, 150 Ω input, 64 dB gain)
Phantom Power	+48 VDC, 10 mA, selectable per input
Pre-Gain Settings	0/14/24/32/44/54/64 dB

AUDIO OUTPUTS	
Output Channels	4 analog (balanced, line level), 8 AmpLink
Connectors, Output	3.81 mm Phoenix Contact, 6-pin (analog), AmpLink RJ-45
Output Impedance	66 Ω
Maximum Output Level	+24 dBu

CONTROL INPUTS	
Inputs (Control)	5 analog or digital inputs, 2 kΩ internal pull-up resistor to 5 V, 3.81 mm Phoenix Contact, 6-pin
Analog Input Voltage Range	0 V to 3.3 V (maximum 5 V)
Digital Input Voltage Range	0 V to 3.3 V (threshold voltage = 1.6 V)

CONTROL OUTPUTS	
Outputs (Control)	5 digital outputs, 3.81 mm Phoenix Contact, 6-pin
Output Voltage	High: 8 V (open circuit), 2.5 V @ 10 mA; Low: < 1 V @ 100 mA, push-pull
Output Current	10 mA source, 100 mA sink (24 VDC max external supply voltage)

INDICATORS AND CONTROLS	
LED Status Indicators	Power/Status, Signal, Ethernet, Serial (RS-232 + CC-16)
Audio Signal Indication	Green (-60 to -20 dBFS), Yellow (-20 to -2 dBFS), Red (-2 to 0 dBFS)

ELECTRICAL SPECIFICATIONS	
Mains Voltage	85 VAC-264 VAC 50/60 Hz
AC Power Consumption	< 37 VA typical, over all mains voltages
Mains Connector	IEC 60320-C14 (inlet)
Power Dissipation	22 W (75 BTU/hr, 19 kcal/hr)

PHYSICAL	
Dimensions	1.7" H x 19.0" W x 8.5" D (44 mm x 483 mm x 215 mm)
Net Weight	5.8 lb (2.6 kg)

ControlSpace ESP-1240A engineered sound processor

PROFESSIONAL

Operating Temperature	32ºF - 104ºF (0ºC - 40ºC)
Cooling System	Active, side venting

GENERAL	
PC Configuration Software	ControlSpace Designer software
Network Control	Ethernet (RJ-45), 100Mb
Communications Ports	RS-232 (DB9M, DTE), Bose CC-16 (3.81 mm Phoenix Contact, 3-pin)

1. **Analog audio connectors** — Mic/line-level balanced input and line-level output connectors
2. **AmpLink output connector** — For use with AmpLink-equipped Bose amplifiers
3. **Control Outputs connector** — Five general-purpose control outputs
4. **Control Inputs connector** — Five general-purpose control inputs
5. **RS-232** — Five-wire, RS-232-C (DTE) serial data interface connection
6. **CC-16 connector** — Allows Bose CC-16 zone controller connections
7. **Network port** — Ethernet port for control and monitoring using ControlSpace Designer software, or serial over Ethernet communications.
8. **AC Mains receptacle** — Power cord connection (IEC 60320-C14 inlet)

Product Codes

ControlSpace ESP-1240A engineered sound processor

US-120V	812806-1110
EU-230V	812806-2110
JP-100V	812806-3110
UK-230V	812806-4110
AU-240V	812806-5110