ControlSpace ESP-880A
engineered sound processor

Product Overview

An open-architecture DSP, the Bose Professional ControlSpace ESP-880A engineered sound processor is designed for a wide variety of applications — from small, self-contained projects to large, networked systems. It features 8x8 analog audio I/O, a Bose Professional AmpLink output, and advanced digital signal processing with 48 kHz/24-bit audio conversion. Engineered for precise performance, the ControlSpace ESP-880A also features low-latency and ultra-low noise operation.

Applications

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 shielded Cat 5 cables to send up to 8 channels of low-latency, uncompressed digital audio to compatible Bose Professional amplifiers.

ControlSpace Designer software enables a large set of signal processing modules, such as automatic mic mixers, predictive feedback suppressors, room combiners, multiband graphic and parametric EQs, Bose Professional 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 Professional 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.

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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
ANALOG AUDIO INPUTS	
Input Channels	8 analog (balanced, mic/line level)
Connectors, Input	3.81 mm Euroblock connector®, 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
ANALOG AUDIO OUTPUTS	
Output Channels	8 analog (balanced, line level)
Connectors, Output	3.81 mm Euroblock connector, 6-pin (analog)
Output Impedance	66 Ω
Maximum Output Level	+24 dBu
DIGITAL AUDIO	
AmpLink	8-channel output, <21 µs latency, requires shielded Cat 5/6
CONTROL INPUTS	
Inputs (Control)	5 analog or digital inputs, 2 kΩ internal pull-up resistor to 5 V, 3.81 mm Euroblock connector, 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 Euroblock connector, 6-pin
Output Voltage/Current	High: 8 V (open circuit), 2.5 V @ 10 mA; Low: < 1 V @ 100 mA, (24 VDC maximum 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	100 VAC-240 VAC, 50/60 Hz
AC Power Consumption	35 W (maximum)
Mains Connector	IEC 60320-C14 (inlet)
Power Dissipation	22 W (75 BTU/hr, 19 kcal/hr)
PHYSICAL	
Dimensions (H × W × D)	44 × 483 × 215 mm (1.7 × 19.0 × 8.5 in)
Net Weight	2.6 kg (5.8 lb)
Operating Temperature	0°C - 40°C (32°F - 104° F)
Cooling System	Active, side venting
GENERAL	
PC Configuration Software	ControlSpace Designer software, version 5.4 and higher
Network Control	Ethernet (RJ-45), 100 Mbps
Communications Ports	RS-232 (DB9M, DTE), Bose Professional CC-16 (3.81 mm Euroblock connector, 3-pin)

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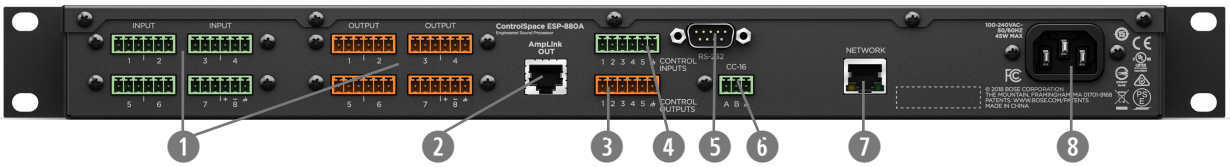
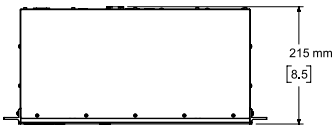
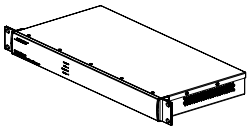


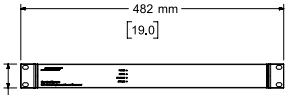
1. **Analog audio connectors** — Mic/line-level balanced input and line-level output connectors
2. **AmpLink output connector** — For use with AmpLink-equipped Bose Professional amplifiers
3. **Control outputs connector** — Five general-purpose control outputs
4. **Control inputs connector** — Five general-purpose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

Mechanical Diagrams

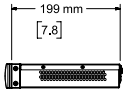


Top View

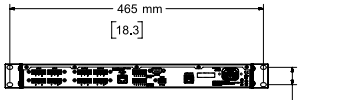




Front View



Right View
DIMENSIONS APPLY TO BOTH SIDES



Rear View

Bottom View

NOTES:
1. DIMENSIONS ARE IN MILLIMETERS OVER INCHES

Product Codes

ControlSpace ESP-880A engineered sound processor

US-120V	812862-1110
EU-230V	812862-2110
JP-100V	812862-3110
UK-230V	812862-4110
AU-240V	812862-5110

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