



## AP400 Audio Conferencing System

The Audio Perfect® 400 (AP400) features ClearOne's proprietary Distributed Echo Cancellation® technology, which enhances the audio quality in any conferencing application by placing an echo canceller and an audio processor on every microphone input. This technology is vastly superior to traditional system-wide echo cancellation because it eliminates gating and audio processing problems that can hamper such systems. The result is highly reliable, clear audio for use in demanding acoustical environments.

The AP400 features a built-in telephone interface for complete phone line integration. The unit also features an internal power amplifier for easy loudspeaker integration. The AP400 also performs automatic gating of microphones, mic mixing, audio processing, and matrix routing—all in a rack-mountable unit that seamlessly integrates the functions of each component.

The AP400 provides extreme flexibility for your applications. Each unit has four mic/line inputs, four line-level inputs (for codecs, VCRs, CD players, etc.), and eight line outputs. Every input features automatic gain control to compensate for loud or soft voices. The mic/line inputs also offer equalization for continuous cut or boost, as well as high-pass filtering to reduce unwanted low frequency noise.

For conference applications where you need more microphone coverage, AP400s and AP800s can be combined

for up to 64 microphones. When multiple telephone lines are needed, up to 16 AP10 units can also be added. All units are G-Linked together using ClearOne's high-speed digital network bus, and can be controlled and monitored via a single RS-232 connection.

All features and functions of the AP400 are easily configured with advanced AP-Ware™ software.



**The AP400 provides high-quality audio for a wide variety of conferencing applications.**

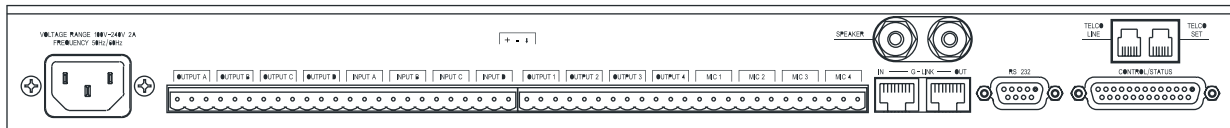
### Features and Benefits

- Easy to install—simple to operate.
- Distributed Echo Cancellation technology on each mic/line input dramatically improves overall system performance, flexibility, and setup.
- "Plug and play" capability for easy design, programming, installation and maintenance—no white noise setup.
- Automatic microphone gating reduces background noise and reverberation, resulting in crystal-clear, transparent audio.
- Simultaneous two-wire/four-wire capability enables video and telephone participants to communicate simultaneously with full-duplex audio.
- Expandable (via the G-Link) to accommodate applications requiring up to 64 microphones—all system parameters are linked and function as one system.
- All inputs incorporate automatic gain control to compensate for loud or soft voices, while the four mic/line inputs offer equalization for continuous cut or boost and high-pass filtering to reduce unwanted frequency noise.
- Matrix allows for simple routing customization for a wide variety of applications and individual customer requirements.
- Full system configuration capabilities with advanced AP-Ware software.

### Applications

- Distance Learning
- Teletraining
- Telemedicine
- Courtrooms
- Conference Rooms
- Boardrooms
- Hotels

**The AP400 is manufactured and marketed by ClearOne, formerly Gentner.**



## Specifications

### Dimensions (LxDxH)

17.25" x 10.25" x 1.75"  
43.8 x 26 x 4.5 cm

### Weight

7 lb/3.18 kg dry  
12 lb/5.4 kg shipping

### Operating Temperature

32–100° F/0–38° C

### Humidity

15% to 80%, non-condensing

### Power Input Range

Auto-adjusting  
100–240VAC; 50/60Hz

### Power Consumption

30W typical

### G-Link In/Out

Proprietary Network  
RJ-45 (2), 38.4kbps, 110k $\Omega$  impedance  
Category five twisted-pair cable 20'  
(6 meters) maximum cable length between  
two networked Audio Perfect products

### RS-232

DB-9 female  
9,600 (default)/19,200/38,400 baud rate  
8 bits, 1 stop, no parity  
Hardware flow control on (default)/off

### Control/Status

DB-25 female A/B  
Inputs A/B: active low (pull to ground)  
Outputs A/B: Open collector, 40VDC max,  
40mA each  
+5VDC pins (2) (300mA over-current  
protected)

### Mic/Line inputs 1-4

Push-on terminal block, balanced, bridging  
Impedance: 5k $\Omega$

Nominal Level: adjustable, -55dBu, -25dBu,  
0dBu

Maximum Level: -33dBu, -4dBu, +20dBu  
Echo Cancellation: 120ms tail time (works  
with 12dB of room gain)  
Phantom Power: 24V, selectable

### Line Inputs A-D

Push-on terminal block, balanced,  
bridging  
Impedance: 20k $\Omega$   
Nominal Level: 0dBu  
Maximum Level: 19dBu

### Outputs 1-8

Push-on terminal block, balanced,  
bridging  
Impedance: 50 $\Omega$   
Nominal Level: 0dBm  
Maximum Level: 19dBu

### Speaker Output

Binding post 5W max into 4 $\Omega$

### Telco Line

RJ-11 connector  
POTS (plain old telephone service)  
line or analog extension from PBX

### Telco Set

RJ-11 connector  
Connect analog telephone set  
A-lead supervision provided

### Audio Performance

Conditions: Unless otherwise specified, all  
measurements are performed with a 22Hz to  
22kHz BW limit (no weighting).

Frequency Response: 20Hz to 15kHz  
 $\pm$ 2dB  
Noise (EIN): -125dBu, 15kHz BW,  
max gain,  $R_s=150\Omega$   
THD+N: <0.1%  
SNR: 65dB re 0dBu  
Dynamic Range: 85dB

### Telco Audio Performance

Frequency Response: 250Hz to 3.3kHz  
 $\pm$ 2dB (AGC disabled)  
SNR: >60dB re -15dBm on/off the  
telephone line  
THD+N: <0.2%, 250Hz to 3.3kHz  
(AGC disabled)  
Pre-Emphasis: +4dB @ 2kHz  
TEC tail time: 31ms  
TEC null: 55dB nominal

### Approvals

FCC, ASA, CE

### Matrix Mixing Parameters

8x8 matrix

### Auto Mixer Parameters

Number of Open Microphones (NOM)  
PA Adaptive Mode  
First Mic Priority Mode  
Last Mic Mode  
Maximum # of Mics Mode  
Ambient Level  
Gate Threshold Adjust  
Off Attenuation Adjust  
Hold Time  
Decay Rate

### Microphone Input Configuration

Input Gain Adjust  
Mic or Line Level  
Phantom Power on/off  
Echo Cancellation on/off  
Mute on/off  
Chairman Override on/off  
High Pass Filter  
EQ Adjust  
AGC on/off  
Auto Gate/Manual Gate/Gate Override  
Adaptive Ambient on/off

### Set-up Software

AP-Ware™