ClearOne
You're Virtually There℠

Audio Conferencing

XAP™ 400 Audio Conferencing System

The XAP™ 400 combines a highly advanced digital matrix mixer that features Distributed Echo Cancellation®, noise cancellation, and audio processing with a single-line digital hybrid and a 10W amplifier. This combination provides a complete teleconferencing system—all in a single rack space unit.

In addition to Distributed Echo Cancellation, which places an echo canceller on every mic input, the XAP 400 features noise cancellation, which reduces background noise such as that caused by fans and air conditioning. The XAP 400 also features four configurable filters on each of the four microphone inputs. The result is crystal clear, echo-free audio in even the most challenging environments.

Echo cancellation performance is also enhanced by new EC reference summing capabilities. The XAP 400 has four configurable virtual EC references which allow you to reference multiple signals without sacrificing an analog output.

The XAP 400 is well suited as a stand-alone unit in small to medium rooms or as an addition to a video conferencing system—providing expanded audio capabilities including remote participation by telephone. For larger applications, the XAP 400 features an enhanced expansion bus, with 12 bi-directional audio buses, allowing it to be networked with other XAP products. Eight XAP 400s or 800s can be networked.

Applications

- Conference Rooms
- Boardrooms
- Distance Learning
- Training Rooms
- Courtrooms
- Hotels

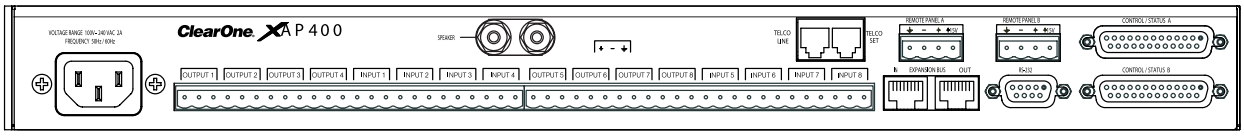
The XAP 400 is manufactured and marketed by ClearOne, formerly Gentner.

The XAP 400 supports four mic/line level inputs, four line level inputs, eight line level outputs, and a speaker output. Using G-Ware™ configuration software, you can easily route any input to any output or combination of outputs in a fully configurable matrix.

The XAP 400 features a built-in telephone interface for teleconferencing capabilities.

Features and Benefits

- Distributed Echo Cancellation
- Noise cancellation
- Four virtual references for echo cancellation summing
- Four configurable filters on each of the four microphone inputs
- Four independent processing blocks, each with 15 filters, delay and compressors, provide pinpoint audio configuration
- Front panel control of mute and gain on inputs and outputs
- Safety mute button on the toolbar to mute all outputs if feedback occurs during the configuration process
- 32 presets that can be executed without disturbing ongoing operations
- Up to 80 feet (24 meters) between connected units—eight XAP units can be linked for up to 64 microphones
- 10W, 4–16Ω speaker output
- Country-specific telco configuration settings
- Built-in telephone interface with telco noise cancellation and echo cancellation
- Control through expansion bus, RS-232 port, contact closure, ClearOne Control Panels, or XAP IR Remote



Specifications

Dimensions (LxDxH)
17.25" x 10.25" x 1.75"
43.8 x 26 x 4.5 cm

Weight
9.9 lb/4.5 kg dry
13 lb/5.9 kg shipping

Operating Temperature
32 to 100° F/0 to 38° C

Humidity
15% to 80%, non-condensing

Power Input Range
Auto-adjusting
100–240VAC; 50/60Hz

Power Consumption
30W typical

Expansion Bus In/Out
Proprietary Network
RJ-45 (2), 115.2kbps, 110kΩ impedance
Category five twisted-pair cable
80' (24 meters) maximum cable length between any two XAP 800s, XAP 400s, or PSR1212s

RS-232
DB-9 female
9,600/19,200/38,400(default)/57,600 baud rate; 8 bits, 1 stop, no parity
Hardware flow control on (default)/off

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

Remote Panels A/B
4-pin push–on terminal block
RS-485 Proprietary Protocol
Category five twisted–pair cable
1 pair data, 1 pair power and ground
+15VDC (300mA over-current protected)

Mic/Line Inputs 1-4
Push-on terminal block, balanced, bridging
Impedance: 5kΩ
Nominal Level: adjustable -55dBu, -25dBu, 0dBu
Maximum Level: -35dBu, -5dBu, +20dBu
Echo Cancellation: 130ms tail time (works with 12dB of room gain)
Noise Cancellation: 6–15dB attenuation
Phantom Power: 24V, selectable

Line Inputs 5-8
Push-on terminal block, balanced, bridging
Impedance: >10kΩ
Nominal Level: 0dBu
Maximum Level: 20dBu

Outputs 1-8
Push-on terminal block, balanced
Impedance: 50Ω
Nominal Level: 0dBu
Maximum Level: 20dBu

Audio Performance
Conditions: Unless otherwise specified, all measurements are performed with a 20Hz to 20kHz BW limit (no weighting)
Frequency Response: 20Hz to 20kHz ±1dB
Noise (EIN): -126dBu, 20kHz BW, max gain, Rs=150Ω
THD+N: <0.02%
SNR: 80dB re 0dBu (A-weighted)
Dynamic Range: 100dB (A-weighted)
Crosstalk <-91dB re 20dBu @ 20kHz channel to channel

Assignable Processing Blocks
Filters:
- All pass
- Low pass
- High pass
- Low shelving
- High shelving
- Parametric EQ
- Notch
- CD Horn

Crossovers:
- Bessel
- Butterworth
- Linkwitz-Riley

Compressor; adjustable
Delay; adjustable up to 250ms

Matrix Mixing Parameters
25x26 matrix
8 analog in/out
1 speaker out (10W)
12 expansion bus in/out
4 assignable processing blocks in/out
1 telco in/out

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
Noise Cancellation on/off
Filters
- All Pass
- Low Pass
- High Pass
- Notch
- PEQ

Mute on/off
Chairman Override on/off
AGC on/off
Speech Leveler on/off
Auto Gate/Manual gate
Adaptive Ambient on/off

Telco Line
RJ-11
POTS (plain old telephone service) or analog extension from a PBX
A-lead supervision provided

Telco Set
RJ-11
Connect analog telephone set
A-lead supervision provided

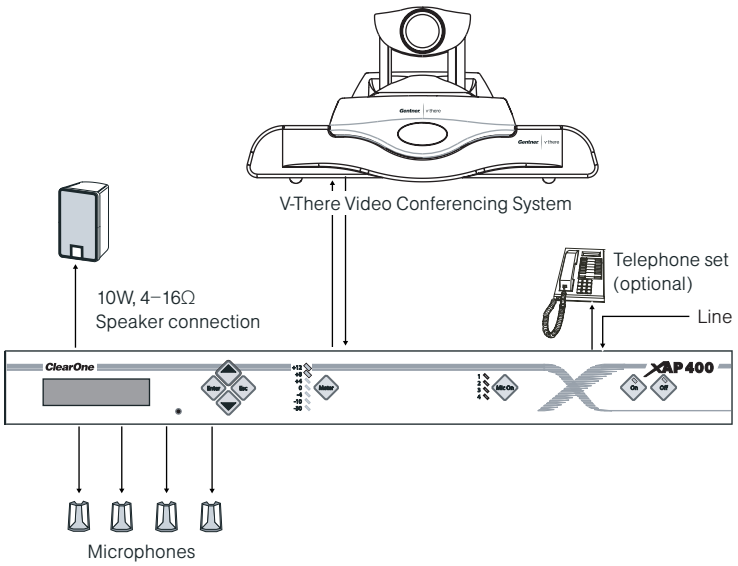
Telephone Audio Performance
Conditions: Unless otherwise specified, all measurements are performed with AGC disabled, referenced @ -15dBm on/off the telephone line
Frequency Response: 250Hz to 3.3kHz ±1dB
THD+N: <0.2%, 250Hz to 3.3kHz
SNR: >62dB re max level
Pre-emphasis: 4dB @ 2kHz

Telephone Echo Cancellation
Tail Time: 31ms
Null: >55dB

Telephone Noise Cancellation
Noise Cancellation: 6–15dB attenuation

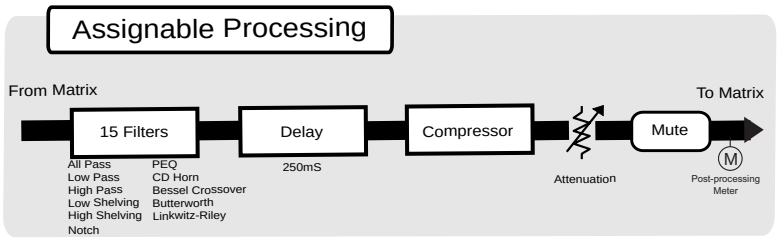
Set-up Software
G-Ware

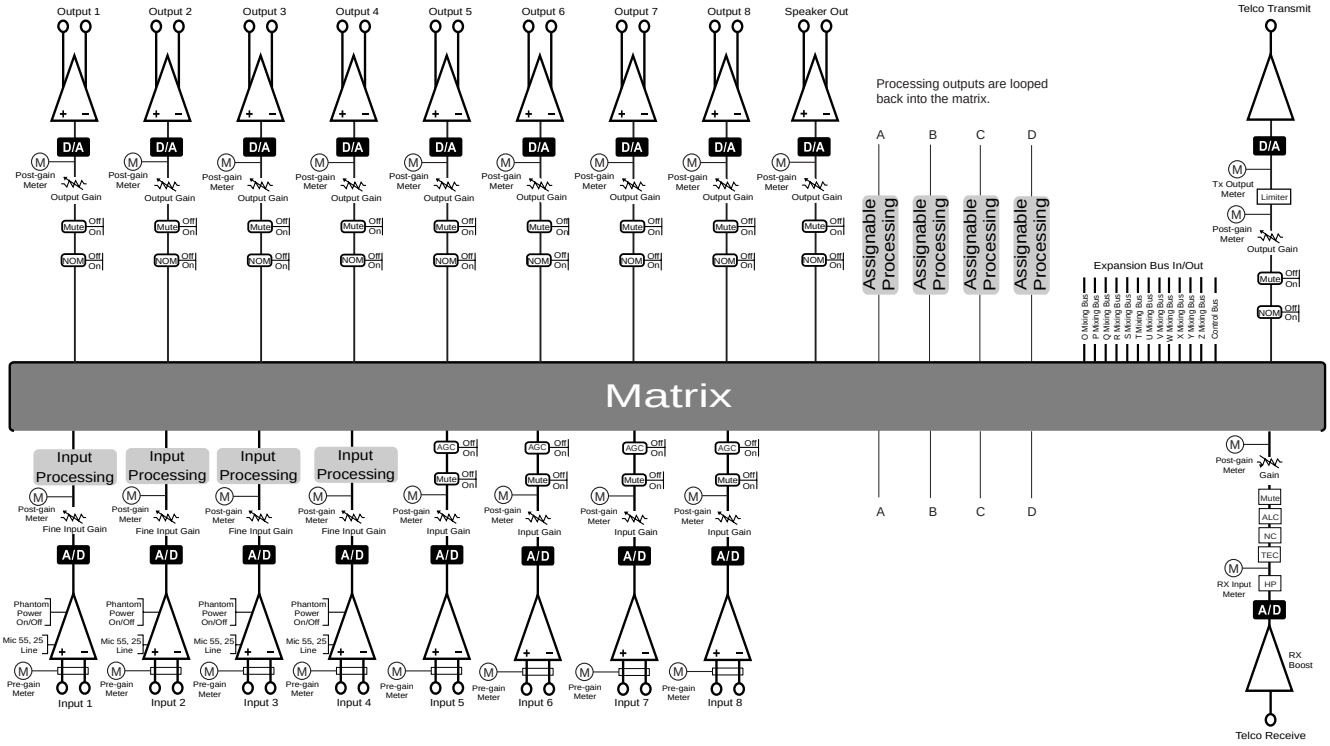
Approvals
FCC, CSA, IC, CE, NOM, ACA, SABS, JATE

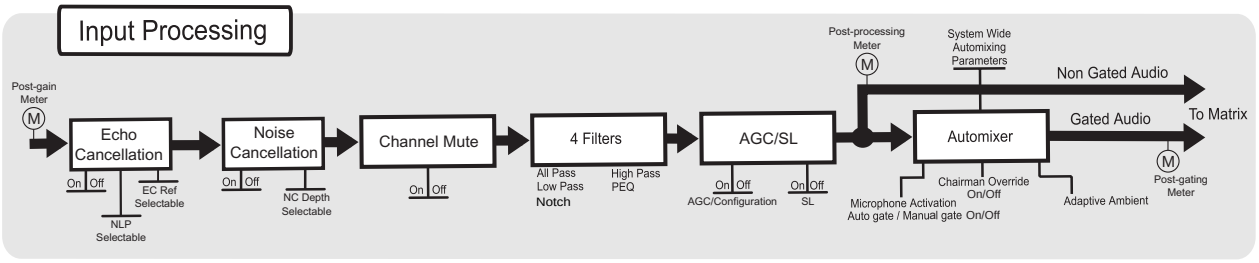


XAP 400 connections in a typical video conferencing installation.

Block Diagram







Ⓜ = Meter Reference Point

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