



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 one-rack 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 like that caused by fans and air conditioning, and 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 (EC) 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 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 for up to 64 microphone inputs.

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.

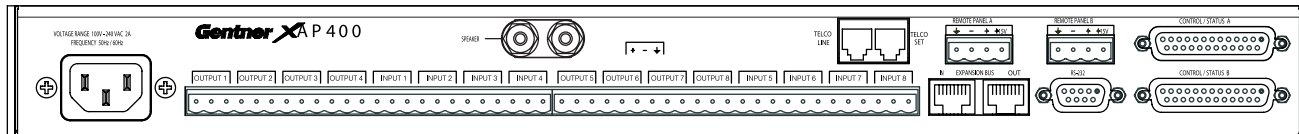
Features and Benefits

- 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, Gentner Control Panels, or XAP IR Remote

Applications

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

audio conferencing



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

32–100° F/0–38° 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, 110k Ω
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

DB25 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: 5k Ω
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: >10k Ω

Nominal Level: 0dBu
Maximum Level: 20dBu

Outputs 1-8

Push-on terminal block, balanced
Impedance: 50 Ω
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
 \pm 1dB
Noise (EIN): -126dBu, 20kHz BW,
max gain, $R_s=150\Omega$
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

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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 ± 1 dB

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

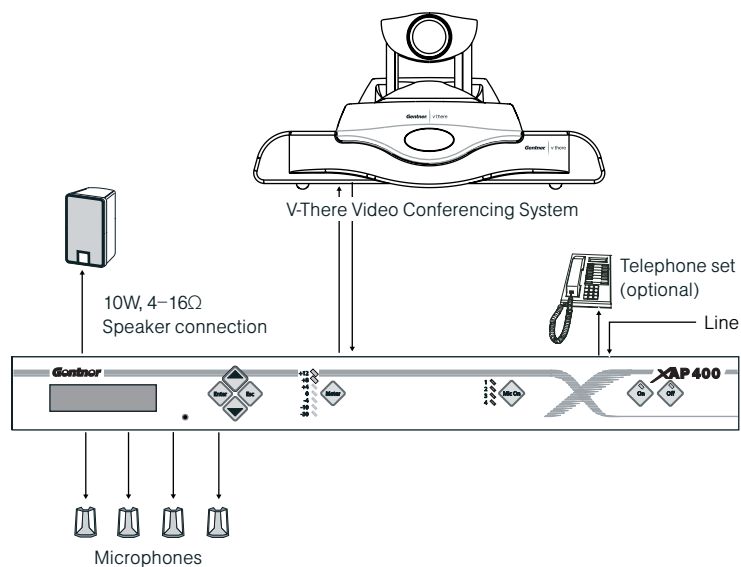
Noise Cancellation: 6–15dB attenuation

Set-up Software

G-Ware

Approvals

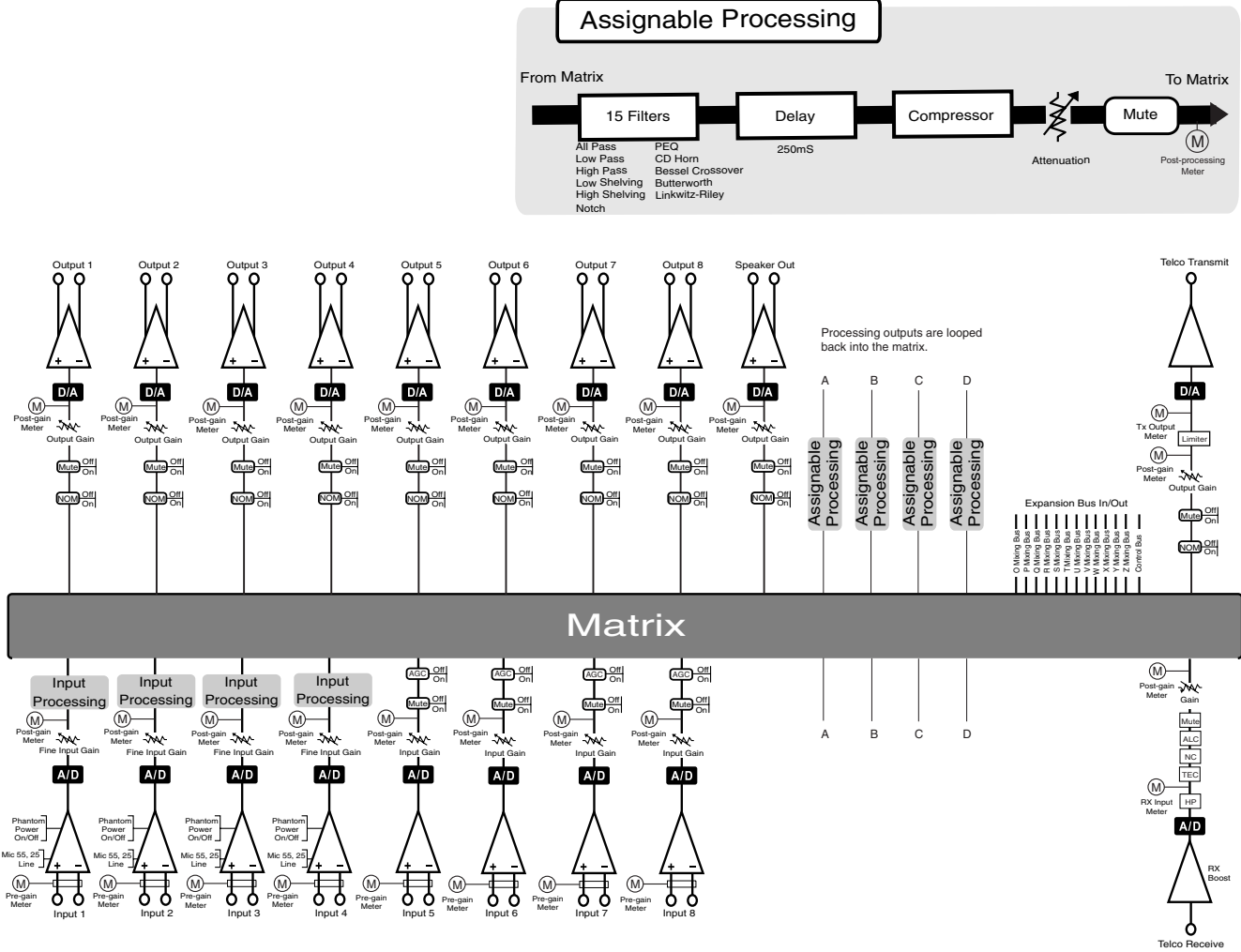
FCC, CSA, IC, CE, NOM, ACA, SABS, JATE



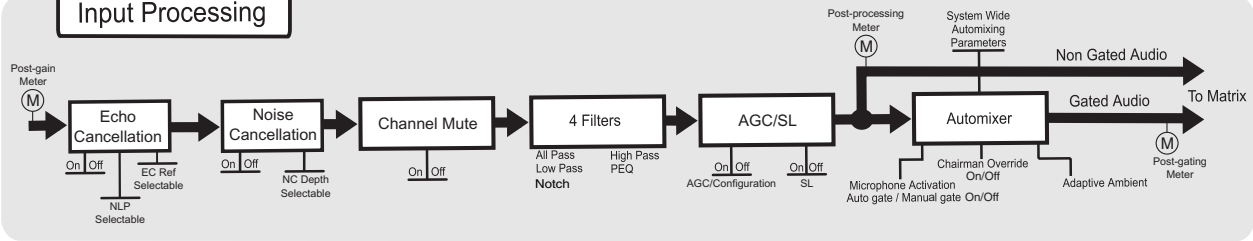
XAP 400 connections in a typical video conferencing installation.

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Block Diagram



Input Processing



(M) = Meter Reference Point