ECS

Networkable Echo Cancellation System

PENTON™

FEATURES

- Up to 24 analogue inputs/outputs
- Up to 16 Echo Cancellation Channels
- Telephone Card
- Configuration via PC/Laptop
- Third Party control via RS232 or IP commands
- Full DSP drag and drop component library
- Multi-level access levels
- Network up to 128 units
- 5 year warranty

DESCRIPTION

Designed for conference applications requiring Acoustic Echo Cancellation, the ECS is also suited for many other audio installations requiring drag and drop software and a high powered DSP engine. The AEC component is not resident on the Input Card, but on a separate chip inside the box. Hardware system configurations are flexible with up to 24 I/O configurations in blocks of 4. Up to 16 Echo Cancellation channels in blocks of 4, and an optional telephone card are also available. Software system design is PC based via ATEIS Studio software residing on a PC. Once connected to the ECS, ATEIS Studio allows for design downloading, reversal of in-box designs, and live monitoring, calibration, an routing via the PC. Third Party control systems such as Crestron, AMX, Vity and others can also control the ECS either via RS232 or IP commands. Up to 128 ECS units can be networked with up to 4 miles between each unit (fiber connection). A variety of accessories, including low cost analogue controllers (RAC), digital controllers (URC), and various paging and control microphones (PPM, PPM Touch) are available for use with the system.

SPECIFICATIONS

FREQUENCY RESPONSE:
20Hz - 20kHz @ +4dBU (=/-0.6 db)

DYNAMIC RANGE:
> 105 dB

MAXIMUM GAIN:
66 dB

CROSSTALK:
Line <-78dB, mic <-73dB

OUTPUT IMPEDANCE:
200 ohms

INPUT IMPEDANCE:
8k ohms

MAXIMUM OUTPUT:
+ 24dBu

MAXIMUM INPUT:
+ 24dBu

PHANTOM POWER:
+ 48 VDC

INPUT GAIN RANGE:
0 to 54 dB

SAMPLING RATE:
48kHz or 96 kHz (selectable)

A/D D/A CONVERTERS:
24 bit

POWER CONSUMPTION:
<145 Watts

DIMENSIONS:
17.125"W x 1.75"H x 11.625"D

MAX WEIGHT:
8 lbs.

COMPLIANCE:
CE LVD and EMC Directive, EU Directive 2002/95/EC, UL 60065 Listed

SOFTWARE COMPONENTS:

- AEC Modules – 4 Channels of AEC in each module
- Delays – 5 ms to 2000 ms
- Dynamics – AGC (mono and stereo), Automatic Noise Sensing, Compressor, Comp-limiter, Expander (mono and stereo), Ducker (mono and stereo), Mono and Stereo Gate, Voice Gate, Gate with Sidechain
- Equalizers – Mono and Stereo GEQ (1 Octave, 2/3 Octave, 1/3 Octave), Mono and Stereo PEQ (2, 4, 6, 8, 10, 16 bands)
- Feedback Cancellation – Dynamic Feedback cancellation 1/5, 1/10, 1/20, and 1/100 Octave with 4, 8, 12, or 16 bands
- Inverter
- Level Controls – 1x1, 4x4, 8x8, 16x16
- Local Echo Supression Module
- Logic – AND, NOT, OR, NOR gates with Net Input/Output for network applications
- Meters – 1 CH, 4 CH, 8 CH, 16 CH Peak/RMS meters
- Message Repeater – Up to 53 minutes of audio can be stored inside the box and output 2 separate messages simultaneously to independent zones. Messages can be activated using TTL inputs or via the built-in Scheduler
- Mixers – Automixers, Automixers with Mix Minus, Matrix Mixers, Standard Mixers, and Room Combiner
- Noise Generator – White, Pink, Tone
- Page Control Module – For zone paging applications
- Selectors – 4x1, 5x1, 6x1, 7x1, 8x1, 16x1, 32x1 for use with Third Party control or ATEIS RAC, URC remote controllers
- Telephone Card
- Phone Book
- Custom Components – Build your own program within the program and password protect it

HARDWARE COMPONENTS:

- Main Frame – 6 slots for input/output cards, 8 TTL/Analogue Inputs, 2 TTL Outputs, RS485, RS232 Port, Ethernet Port
- Input Card – 4 Channels with individual Bypass, Mute, Sensitivity Select, Phantom Power, Mute, RTO (route to output), VU Meter, Signal Present, Level Control and adjustable Overload Threshold
- Output Card – 4 Channels with individual Overload Indicator, Mute, Meter, Signal Present, Level Control, and adjustable Overload Threshold
- Echo Cancellation Chip – 4 Channels with individual Echo Detect Indicator, Signal Present, ERLE meter, AEC Coefficient Bypass- Hold- Perform, Far End VU Meter, Near End VU Meter, Near End Volume Adjust, NLP threshold adjust, Noise Reduction, Noise Reduction Threshold select
- Telephone Card – Caller Signal Mute and level adjust, Ring Signal Mute and level adjust, Auto Answer on/off – number of rings select, Noise Suppression, Line Echo Cancellation, DTMF Decoder, Dialer, Phone Book, Level Out Adjust
- Network Card – Cat 5 port or Fiber Port

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■ ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The Digital Audio Platform shall be available with up to 24 inputs and outputs. Inputs/outputs shall be specified in blocks of 4, up to a total of 24. Mic/line Input, Acoustic Echo Cancellation, Telephone Interface, and Mic/Line Ouput options shall be available. Inputs/outputs shall be analog, with internal 24-bit A/D & D/A converters operating at a sample rate of 48kHz or 96 kHz. All internal processing shall be digital (DSP). Electronically balanced inputs and outputs shall be provided on plug-in barrier-strip connectors. Inputs and outputs shall be individually programmable for either microphone or line level signal. Expansion modules for up to 128 ECS systems in a network shall be available.

Each hardware configuration shall include 32 bit ADSP 21369 DSP. Software shall be provided for creating/connecting DSP system components within each hardware unit. Available system components shall include (but not be limited to) various forms of: mixers, equalizers, filters, crossovers, dynamics/gain controls, routers, delays, remote controls, meters, generators, and diagnostics. Ethernet communications shall be utilized for software control, configuration, and DSP distribution. Each multi-unit application shall feature a fully redundant network configuration with less than 0.02 ms latency between units. All network configurations shall be via CAT5 cable or fiber-optic. After initial programming, systems may be controlled using either TCP/IP or RS-232 serial communication by third party control systems (such as AMX® and Crestron®), by PC computer, and/or by dedicated remote control devices. Software shall operate on a PC computer, with network card installed, running Windows® XP Professional/Vista/Windows 7. The Digital Audio Platform shall be CE marked, UL/C-UL listed. Warranty shall be 5 years.

Rear Panel Diagram
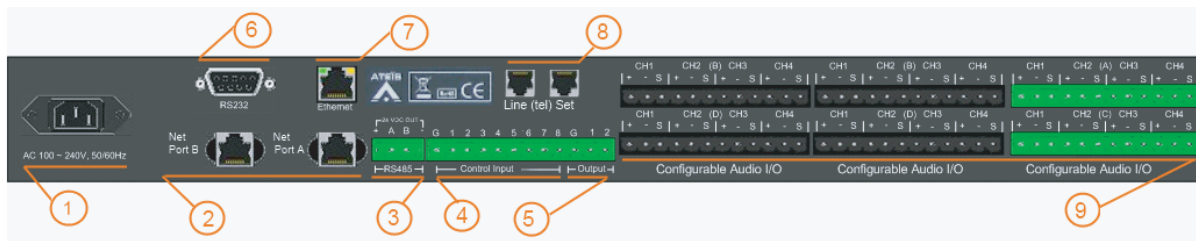
1. Power	3. RS485	5. Logic Out	7. Ethernet /PC Connect	9. Input/Output Slots
2. Network Card	4. Logic/Analogue In	6. RS232	8. Line/Set Telephone Card	

Front Panel Diagram
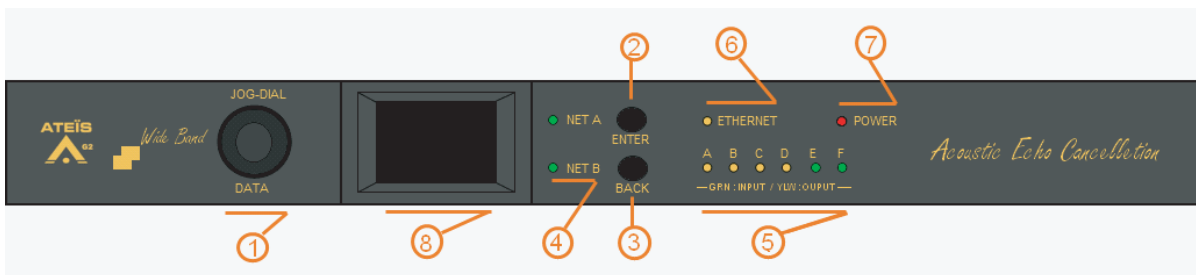
1. Jog Dial for parameter adjust	4. Network Indicators	7. Power Indicator
2. Enter button	5. Input/Output Signal Present Indicators	8. LCD Screen for parameter adjust
3. Back button	6. Ethernet Connection Indicator	