DSP8807

Self Contained, Compact Multi-Zone Digital Controlled Sound Masking Processor

DSP8807 Front

DSP8807 Back

1. Amplifier Outputs (50 Watts x8 @ 70.7V)

2. Line Level Outputs for Expansion to External Amplifiers (x8)

3. RJ45 Inputs for Optional Ambient Sensing Microphones (x8)

4. Telco Page Input (Loop Start). Use with 2-5 Digit GUI Defined DTMF Dial Plan

5. BGM, and Line Inputs

6. Paging Mic Input with 32VDC Switchable Phantom Power

7. Contact Closure Inputs (x4)

8. TCP/IP Network Input (Parallel Input Also on Front Panel)

Features

• AVB (Audio Video Bridge) Audio Networking Allows Distribution of Paging, BGM and Line Level Inputs Between Multiple DSP8807 and/or DSP2212 Units Across TCP/IP Data Networks

• User Friendly GUI and Easy Network Setup

• Built-In Amplification for Each Output (50W @ 70.7V x 8)

• Line Level Outputs (x8) for Expansion to External Amplifiers

• Expandable - Up to 256 Units (2048 Zones)

• Non Repeating Pink Noise Sources

• Front Panel Visual Status LED's for All I/O

• Parametric EQ for All Paging / Line Sources

• ⅓ Octave EQ for All Masking Zones

• Comprehensive Telco Interface Facilitates Complex Paging Scenarios for Multi Floor Buildings

• Paging Mic Input for Evacuation or General Announcements

• Optional Ambient Sensing Microphones for Automatic System Adjustment

• UL / CUL and FCC Listed

General Description

The Atlas Sound DSP8807 is a self-amplified, sound masking controller with extensive digital signal processing (DSP) and telephony interface capabilities. All aspects of signal routing, processing and prioritization are administered through an intuitive Graphic User Interface (GUI) managed via a local Windows® based laptop or desktop computer. The software has the ability to expand up to (253) systems with over 2,000 zones (2,048) with primary and secondary assignment in a zone paging dialing plan. It also provides the ability to set up "All zone" page, "Group zone" page (up to 32 groups) and "Single zone" page with an architectural dialing plan (2-digit DTMF) set up in the GUI. AVB (Audio Video Bridge) audio networking allows distribution of paging, BGM and line level inputs between multiple DSP8807 and/or DSP2212 units across TCP/IP data networks.

The DSP8807 has 8 channels of independent on-board digital class-D amplifiers capable of delivering 50W RMS per 70.7V output. Additionally, a simultaneous line level output rated at 1V/600Ω (nominal) per zone is available for driving higher power amplifiers. The DSP8807 includes two independent, uncorrelated pink noise generators, which are random and non-repeating up to 215 hours with ⅓-octave EQ adjustments programmable on a per zone basis.

Each DSP8807 is capable of managing remote ambient level sensing microphones (ALM-1) for each zone (x8), via a single CAT5e cable up to 1,000 feet from the DSP8807. These microphones can provide automatic adjustment of the masking level based on real-time noise levels with set up and control via the GUI.

Specifications

System Performance / DSP Processors

Dynamic Range	>102dB A-Weighted
Frequency Response	80Hz–20kHz (±3dB) at Rated Output
Distortion THD+N	.001% Typical at +4dBu, 1kHz, 0dB Gain
Input Sensitivity	≤ 1.0% at 1kHz at Rated Output
Interchannel Crosstalk	> 80dB Typical
Crosstalk Input To Output	> 80dB
Channel Separation	> 100dB at 1kHz (In Thru Out)
Common Mode Rejection Ration (CMRR)	> 50dB, 80Hz – 20kHz Typical > 55dB at 1kHz
Processor Capacity	264 MIPS, 528MFLOPS, Continuous Operation
Sample Rate Audio Conversion	48kHz
D/A Converter Type (Audio)	24-bit Sigma Delta
D/A Performance Dynamic Range (Converter)	> 100dB A-Weighted
A/D Performance Dynamic Range	> 110dB A-Weighted
Non-Volatile Memory	Memory Storage For All Programs And Set Up Protected For 24 Hours In Power Brown Out, Interruption, or Computer Shut Down. Data Settings Good for Ten Years W/O Refresh
DSP Manual Restart	Front Restart Manual Button To Reload DSP's
CODEC – DSP Protection	All I/O Protected With Buffers From Spikes and Transients or Sneak Currents

System Inputs (Unless Noted Located On Rear Panel)

Power AC Mains	IEC 3-pin with Ground, 100VAC-120VAC, 50Hz-60kHz with ON/OFF Manual Switch With Replaceable Fuse
Network – Data	RJ45 Module Jack (EIA 568B)
Telco Loop Start	2-Pin Dockable Keyed Connector
Input Transformer	600Ω
Ring Voltage	105V – 14V (POTS – VoIP)
DTMF Dial Plan	Single, Group, or All Page
Microphone	3-Pin Dockable Keyed Connector
Background Music	RCA Connector 10kΩ (Sum to Mono)
Master Override	2-Pin Dockable Keyed Connector (1V – 70.7V nominal)
Ambient Sensing Microphones (x8)	RJ45 Modular Jack (EIA 568B) No Polarity

System Outputs (Unless Noted Located On Rear Panel)

Speakers (x8)	2-Pin Dockable Keyed Connector (70.7V at 50 Watts RMS)
Audio Line level (x8)	3-Pin Dockable Keyed Connector (1v nominal)
Microphone Frequency Level	80Hz – 18kHz
Music	80Hz – 20kHz
Line out	80Hz – 18kHz
Telco	250Hz – 4kHz
Network system link	RJ45 Modular Jack (EIA 568B)

System Amplifiers (x8)

Frequency Response	80Hz – 20kHz, (±.25dB)
Total Distortion	.001% Typical at +4dB, 1kHz, 0dB Gain
Transformer Output	70.7V and IV Line Level
Efficiency	85% or Better
Gain Control	Adjustable to 34dB
Power Supply	UL / CUL /CE Recognized
Input Impedance	50kΩ
Output Impedance	8Ω
Carrier Frequency	400kHz
Peak Current	1.2A
MTBF (Mean Time Between Failure)	100,000 Hours
EMC / EMI Radiation	FCC Part 15 Class B, EN6100, CISPR 22

System Mechanical Data

Length	14" (358mm)
Width	19" (482.6mm)
Height	3.5" (88.9mm)
Material (Outer Housing)	CRS (Cold Roll Steel) 18AWG (.047" Nominal)
Finish	Flat Black Powder Coat With Zinc Undercoat Corrosion Resistant
Printed Circuit Boards	UL Recognized UL94VO
Electronic Components	RoHS
Operating Temperature	0˚ to +50˚C
Storage Temperature	-40˚ to +85˚C
Humidity	95% Non-Condensing (Max.)

Applications

The Atlas Sound DSP8807 digital processor "Privacy" system is a self contained, compact multi-zone digital DSP-GUI controlled processor and digital amplifier capable of simultaneous distribution of masking, paging, and background music signals for use in:

• Hospitality
• Government Facilities
• Education Transportation
• Corporate
• Industrial
• Restaurants

Architect and Engineer Specifications

The Atlas Sound DSP8807 unit shall provide automatic mixing, set up and administration of all 8x8 inputs / outputs per zone (channel) via an intuitive 'simple to use' Graphic User Interface (GUI) managed via a local Windows® based laptop or desktop computer. The DSP8807 shall include 8 channels of independent on-board digital class-D amplifiers that shall deliver 50 Watts RMS at 70.7V output. An audio line level output rated at 1V/600Ω (nominal) per zone shall drive higher power amplifiers. The DSP8807 shall have two (2) independent uncorrelated pink and white noise generators which are random and non-repeating up to 215 hours with EQ adjustments programmable on a per zone basis.

The DSP8807 shall provide dynamic control and management based on IEEE802.1 AVB standards (Audio-Video Bridging) with independent ⅓ Octave (28) band EQ *(Filter type is Butterworth @ 19dB and Linkwitz-Riley at 24dB) and Parametric EQ for calibration of all PA, ambient level sensing and automatic volume control on a per zone basis. Paging (PA) presets shall be assigned in 10dB increments (10, 20, 30dB) per zone with automatic gain control (AGC) for all Telco and microphone paging inputs. The DSP8807 GUI called the 'DSP Series Masking Control Software' shall control system setup. The software shall have the ability to expand up to (253) systems with over 2,000 zones (2,048) with primary and secondary assignment in a zone paging dialing plan. It shall also provide the ability to set up All zone page, Group zone page (up to 32 groups) and single zone page with an architectural dialing plan (2-digit DTMF) set up in the GUI.
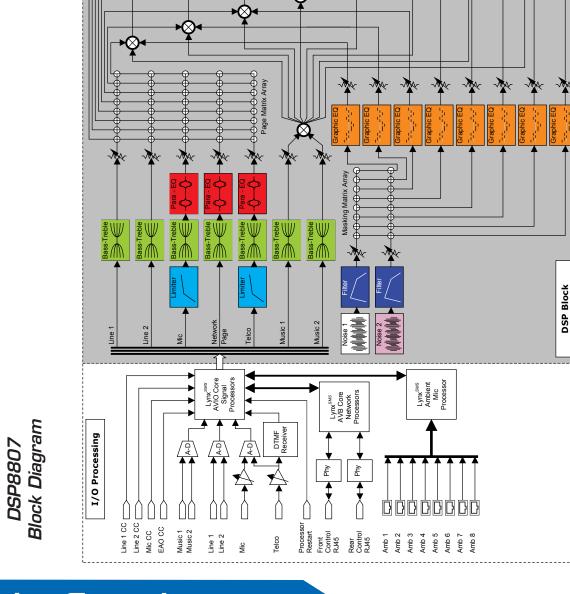
Each DSP8807 shall be capable of managing remote ambient level sensing microphones (ALM-1) for each zone (x8) wired via a single CAT5e cable up to 1,000 feet from the DSP8807 for automatic adjustment of the masking level based on real-time noise levels with set up and control via the GUI. Frequency response shall be 80Hz – 20kHz (±3dB) at rated output with .001% THD typical at 4dBu, 1kHz at 0dB gain and a Dynamic range of 102dB A-weighted. Mechanical dimensions shall be (L x W x H) 14" (358mm) x 19" (483mm) x 3.5" (89mm). All Power Components shall be UL Recognized, Boards Are UL94v0 and RoHS. DSP8807 shall be UL / CUL / FCC and CB (International) Listed.

Specification Friendly Text

1. Digital Signal Processor (DSP) with Noise Masking and Amplification – DSP shall provide multi-zone digital DSP-GUI controlled processor and digital amplifiers capable of simultaneous distribution of masking, paging, and background music signals. DSP shall include status lights on front panel. DSP shall:

   a. Be 2RU High.

   b. Include 8x8 I/O with 8 ambient noise sensor connections and 8 channels of 50 Watts class D amplifiers.

   c. Include two independent pink/white noise generators that are random and non-repeating over 215 hours.

   d. DSP shall include parametric EQ, Graphic EQ, Volume, Tone controls, Network Volume Control, Telco compressor, Matrix, mixer, and ambient mic monitoring.

   e. Include telephone interface.

   f. Utilize Audio Video Bridge AVB Protocols that are IEEE802.1 standards.

   g. Provide status indication of Processors running, Mute, Page Active, Masking Active, Mic Active, Amplifier channels, Emergency Audio Inputs, and System Power

   h. Manufacturer Atlas Sound DSP8807 with ALM-1 Ambient Sensing Microphones or approved equal.

Atlas Sound

DSP8807
Block Diagram

I/O Processing

Line 1 CC
Line 2 CC
Mic CC
EAO CC

Music 1
Music 2

Line 1
Line 2

Mic

Telco

Processor Restart

Front Control RJ45

Rear Control RJ45

Amb 1
Amb 2
Amb 3
Amb 4
Amb 5
Amb 6
Amb 7
Amb 8

A-D
A-D
A-D

DTMF Receiver

Phy
Phy

Lynx^{SMS} AVIO Core Signal Processors

Lynx^{SMS} AVB Core Network Processors

Lynx^{SMS} Ambient Mic Processor

DSP Block

Line 1
Line 2
Mic
Network Page
Telco
Music 1
Music 2

Bass-Treble

Para - EQ

Limiter

Noise 1
Noise 2

Filter

Page Matrix Array

Masking Matrix Array

Graphic EQ

High Pass

EAO Override

Amp O/P

D-A

Zone Amp 1
Line Out 1
Zone Amp 2
Line Out 2
Zone Amp 3
Line Out 3
Zone Amp 4
Line Out 4
Zone Amp 5
Line Out 5
Zone Amp 6
Line Out 6
Zone Amp 7
Line Out 7
Zone Amp 8
Line Out 8

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