AUDIOARTS LiON

FM + HD Audio Processor

Wheatstone

BROADCAST AUDIO PERFECTIONISTS℠

WHEATSTONE INTRODUCES THE AUDIOARTS LION

FM Audio Processor

Our LiON has the latest Wheatstone DSP algorithms; it is not a 90's era processor by any means. The AUDIOARTS LION Five-Band Processor/Multipath Controller has WheatNet-IP, so it can be networked. It has analog and AES3 so it can stand alone. It has Wheatstone SystemLink™ built in, to send full 24-bit linear audio directly to your transmitter over reliable high-speed links — Baseband 192 MPX with FM+HD timing locked (no codec to degrade audio quality). And it comes with 50 presets so you can plug and play.

At last, an affordable FM/HD audio processor with the algorithm prowess for transforming highly compressed source music into a more robust, dynamic listener experience on any device, anywhere.

To deliver airy highs, a smooth midrange, and deep lows you can feel, this low-cost, half rack sized FM/HD audio processor uses Wheatstone's advanced next-gen multiband AGC and clipping algorithms developed specifically for today's source content and listening devices.

The Audioarts LiON includes stereo enhance, RDS, and Wheatstone SystemLink™ for transporting the entire MPX and HD audio signals, including RDS, maintaining perfect FM/HD alignment across any high-speed data link.

Unique to Wheatstone processors, the LiON includes our intelligent five-band AGC technology — or iAGC — coupled to a five-band limiter and stereo generator. The combination provides automatic and superior real-time program density control for a consistent, spectrally-balanced sound regardless of density variations in incoming source material.

Stunning audio with little or no distortion

Fits perfectly into any/every broadcast workflow

Can do double redundant duty, easily replacing a processor on another feed

Multipath mitigation that can increase your listening area

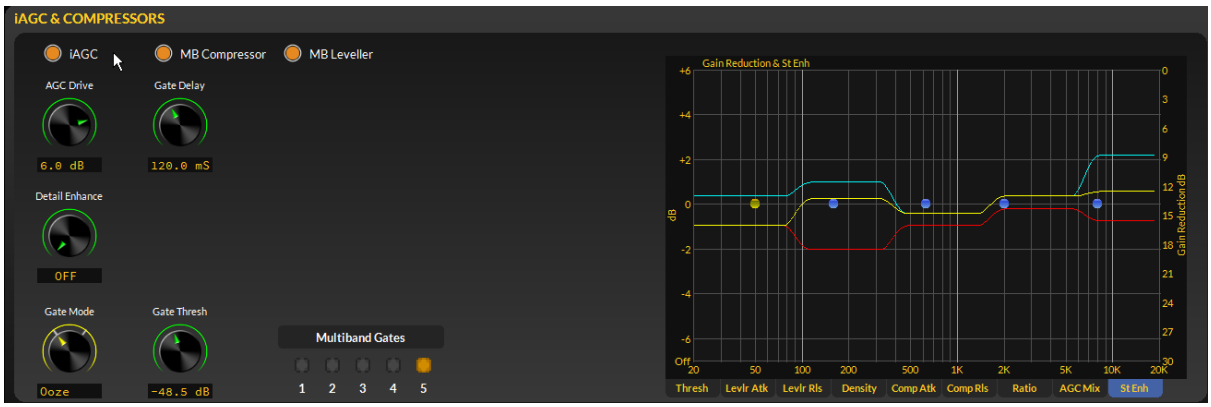
Is a part of the WheatNet-IP Intelligent Network

LiON is part of the WheatNet-IP audio network, with a full-blown interface, so you can set up and trigger presets remotely now and add on to your WheatNet-IP ecosystem later. It also includes 192kHz digital MPX connectivity to the transmitter for end-to-end native IP audio quality. It is equipped with two analog composite outputs, two SCA inputs, balanced analog Left/Right outputs and an AES digital output which may be switched to deliver either discrete Left/Right or baseband192 digital multiplex signal. Input audio may be delivered via analog, AES or WheatNet-IP.

For local and/or remote control, there's a full graphic user interface that allows you to tailor every function of the LiON, so tweaking and making changes is both intuitive and accessible.

LET YOUR SIGNAL ROAR ON A KITTEN BUDGET

INTELLIGENT IAGC



Our adaptive iAGC – or intelligent AGC – allows unobtrusive transitions between hyper-compressed recordings and those with more dynamic range. Effectively manages the behavior of the multiband AGC as program content density changes, something a typical broadband AGC simply cannot do. By coupling the iAGC and multiband AGC, we are able to produce a consistent, spectrally-balanced sound regardless of density variations in incoming source material.

SMART STEREO ENHANCEMENT

The LiON's Smart Stereo Enhancement provides a wide but extremely stable 'on-air' stereo image. "Wide", "alive", "exciting to listen to", and "very natural sounding" are terms customers have used to describe how our stereo enhancement method sounds. Users have reported hearing artistically important nuances in music that were simply inaudible when processed by competing products.

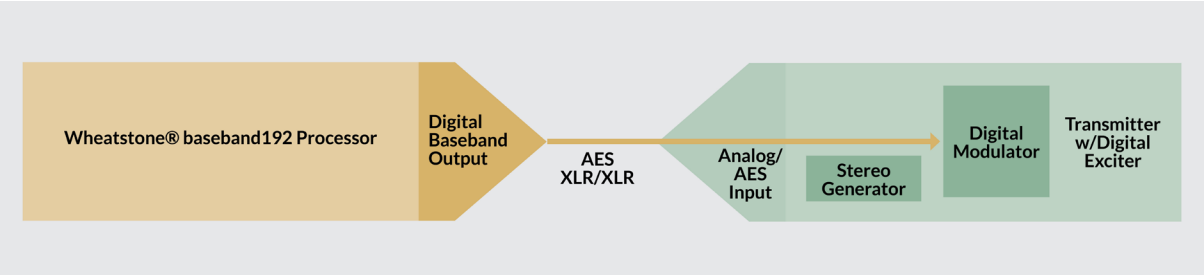
BASS TOOLS

The LiON Bass Management System circumvents bass-related distortion plaguing other broadcast audio processors. The result is increased depth, feel, and clarity of bass impact without affecting mid and high-frequency program – in fact, the clarity of higher-frequency audio is actually enhanced by the new algorithm.

MULTIPATH MITIGATION

Manipulating the stereo field intelligently can dynamically (on a song-by-song basis) mitigate problems created by multipath for FM stereo stations and help them achieve maximum audience reach.

MPX SYSTEMLINK WHEATSTONE BASEBAND 192



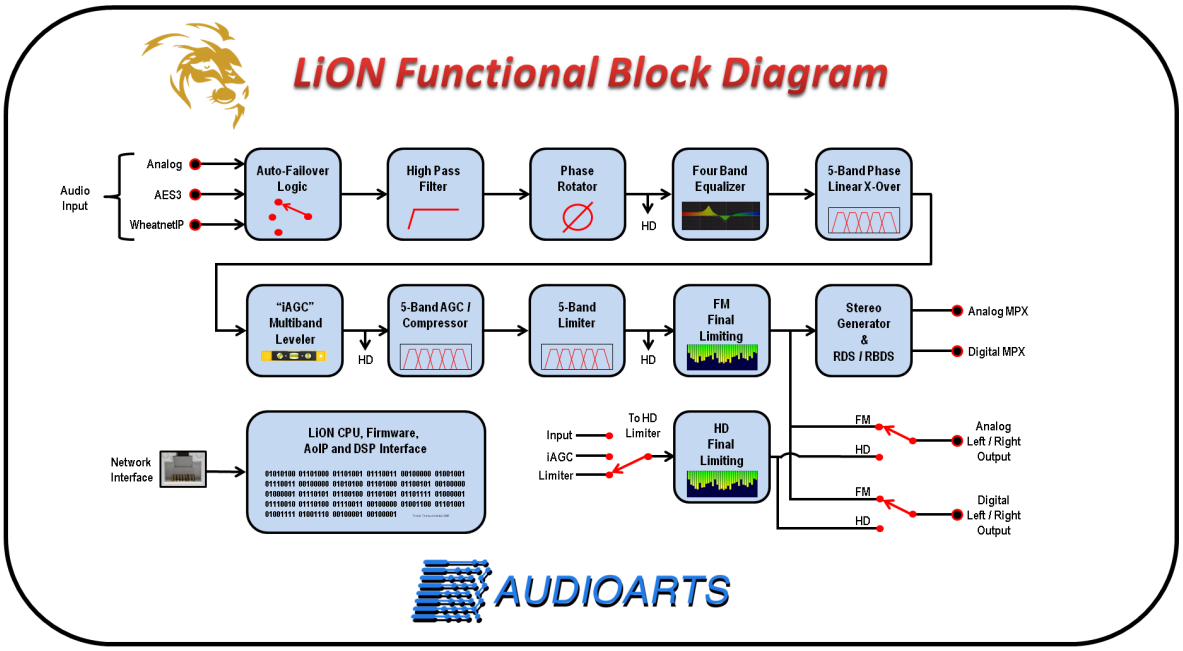
Wheatstone® baseband192 digitizes the entire multiplex spectrum including RDS and SCAs up to 80kHz, providing a higher performance interface than using the classic analog composite method between processing and transmitter. A single AES/EBU cable between the processor and a current solid-state FM transmitter carries the digital baseband signal, bypassing the need for multiplexing in the exciter and eliminating the resulting signal overshoot with its associated loudness tradeoff.

For more info, click here.

LION REMOTE APP

While you can access and adjust virtually all audio parameters through LiON's multi-tab GUI, you don't have to. Rather than wade through multiple screens (example: AGC/COMP menu shown above) our LiON Remote App lets you concentrate on what you hear, not what you see. The app makes the tough, behind-the-scenes decisions based on our simple-to-use controls supplied for TEXTURE (Drive, Density, Loudness) and EQ (Low, Warmth, High). It's as if we send a processing expert with each box!

LION SIGNAL FLOW DIAGRAM



LION IS PART OF THE WHEATNET-IP AUDIO NETWORK

With WheatNet-IP BLADE-4s, you get a virtual rack room in a 1-rack space box. They handle all the I/O (AES/EBU, SPDIF, AOIP, MADI, SDI and AES 67) and provide full routing capabilities. Each BLADE-4 gives you two 8x2 utility mixers, 12 universal GPI/O ports, 128 software logic ports, silence detection, built-in audio clip player, stereo multi-band audio processing, and much more, assignable anywhere on the network. With it you can create workflows that would require a ton of third-party gear.

Click to learn about WheatNet-IP

Click to learn about Blades

SPECIFICATIONS

ANALOG LINE INPUT

Type: Electronic Differential
Input Impedance: 10Kohm bridging
Optimum Source Impedance: < 1Kohm
A/D Converter: TI PCM4202, 192kHz, 24-bit
Maximum Input Level: +20dBu

DIGITAL LINE INPUT

Digital Audio Standard: AES3 (AES/EBU)
Data Amplitude: Per AES3-2003 assuming minimum allowable output signal amplitude of 2V P-P and minimum allowable input signal of 200mV P-P.

AES Receiver: CS8416, 192kHz, 24-bit
Compatibility: Digital sample rates between 32kHz and 96kHz are accepted and automatically synchronized.

Ethernet Data Type: WheatnetIP
Ethernet Interface: 10/100BaseT Ethernet per IEEE 802.3u

Digital Audio Input Reference: 0dBFS externally results in 0.0dBFS internally.

INPUT GAIN ACCOMMODATION

Gain Range: +/- 12dB in 0.5dB steps
Gain Calibration: A gain control setting of 0.0dB aligns an external 0dBFS signal with LiON's 0dBFS internal reference.

INPUT FAILSAFE

Type: Automatic
Analog Fail Cause: Audio level on both channels below - 24dBu (fixed)
Response Time: 30 seconds (fixed)
Digital Fail Cause 1: Audio level below -48dBFS (fixed)
Response Time: 30 seconds (fixed)
Digital Fail Cause 2: Corrupted or invalid AES data
Response Time: Immediate (fixed)
Failsafe Direction: Digital to Analog / Analog to Digital (no Digital to Digital)

AUDIO LEVEL BALANCE

Type: Common to both Analog and Digital Inputs

Adjustment Range: +/- 12dB
Adjustment Resolution: 0.5dB\

PHASE ROTATOR

Filter Topology: 4th Order Allpass
Operating Modes: In or Out (bypass)

HIGH PASS FILTER

Filter Class: 24dB/Octave Butterworth response
Frequency Choices: 20, 30, 40, 50, or 60Hz

EQUALIZER

Number of sections: Four
Low Shelf Frequency Range: 20Hz to 500Hz
Low Shelf Boost/Cut: +/- 14dB
High Shelf Frequency Range: 2kHz to 20kHz
High Shelf Boost/Cut: +/- 14dB
Parametric #1 Frequency Range: 20Hz to 20kHz
Parametric #1 Boost/Cut: +/- 14dB
Parametric #1 Bandwidth: 0.2 to 3.0 octaves
Parametric #2 Frequency Range: 20Hz to 20kHz
Parametric #2 Boost/Cut: +/- 14dB
Parametric #2 Bandwidth: 0.2 to 3.0 octaves

FIVE BAND LEVELER/COMPRESSOR WITH iAGC

Crossover Topology: 4th Order Linkwitz-Riley (phase linear)
iAGC parameters: Automatic and Program Dependent
Leveler/Compressor Compression Ratio: 2:1 to 6:1
Interband Coupling: 0dB to 6dB
L+R Mixer: Boost/Cut +/- 6dB
L-R Mixer: Boost/Cut +/-6dB
Crossover Frequencies: Factory Preset Dependent

FM PEAK CONTROLLER

Type: Proprietary
Stereo Pilot Protection: >50dB
Pre-Emphasis Accuracy: +/-0.25dB
FM Diversity Delay: Off to 10 seconds in one sample steps when simultaneously using the keyboard Ctrl key and the mouse scroll wheel.

STEREO AND RDS ENCODER

Composite Processor: Clipper operating at 192kHz.
D/A Conversion: TI PCM1798, 192kHz, 24-bits
Automatic Multipath Limiter: Program Dependent Timing Characteristics with adjustment range of Off to 100% in 5% steps

Subcarrier Input Impedance: 10kOhms
Subcarrier Input Level Range: -20dBu to +4dBu
Stereo Pilot Injection: Off to 20% of Composite Output level

19kHz Stereo Pilot Frequency: +/-0.2Hz
57kHz RDS Subcarrier Frequency: +/-0.2Hz
Stereo Pilot Protection: Better than 50dB
38kHz Suppression: Better than 70dB

ANALOG AUDIO OUTPUTS

Analog Left/Right Output Level: -48dBu to +20dBu
Analog Left/Right Output Options: Pre-emphasized, De-emphasized, and Pre-delay

D/A Conversion: TI PCM1798, 192kHz, 24-bits
Signal to Noise: >80dB in a 20kHz bandwidth
Total Harmonic Distortion: <0.05% 20Hz – 20kHz

DIGITAL AUDIO OUTPUTS

AES3 Protocol Output Level: >5V P-P into 110 ohm load
AES3 Audio Output Level: -48dBFS to 0DBFS
Digital Left/Right Output Options: Pre-emphasized, De-emphasized, and Pre-delay

Signal to Noise: >80dB in a 20kHz bandwidth
Total Harmonic Distortion: <0.05% 20Hz – 20kHz

OVERALL SYSTEM

Headroom: >20dB
Nominal Operating Level: -20dBFS
Processing Latency Analog In to MPX Out: 57mS maximum
Processing Latency Analog In to HD Out: 34mS maximum
Total Harmonic Distortion: <0.025%, 20Hz – 20kHz
Intermodulation Distortion: <0.025% SMPTE
Signal to Noise Ratio: >85dB
Stereo Separation: >50dB into a low capacitance load
Crosstalk: >75dB, 20Hz – 20kHz
Power Requirements: 100-250V AC, auto-sensing 50/60Hz, 9W/14VA

Power Connector: IEC 60320 C14 (male)
Operating Temperature: 0 to 50 degrees C (32 to 122 degrees F)
Overtemp alarm reporting via the GUI

Designed and built by
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