AIRAURA X1

Digital Audio Spectral Processor

Wheatstone

BROADCAST AUDIO PERFECTIONISTS®

the front panel and what's behind it

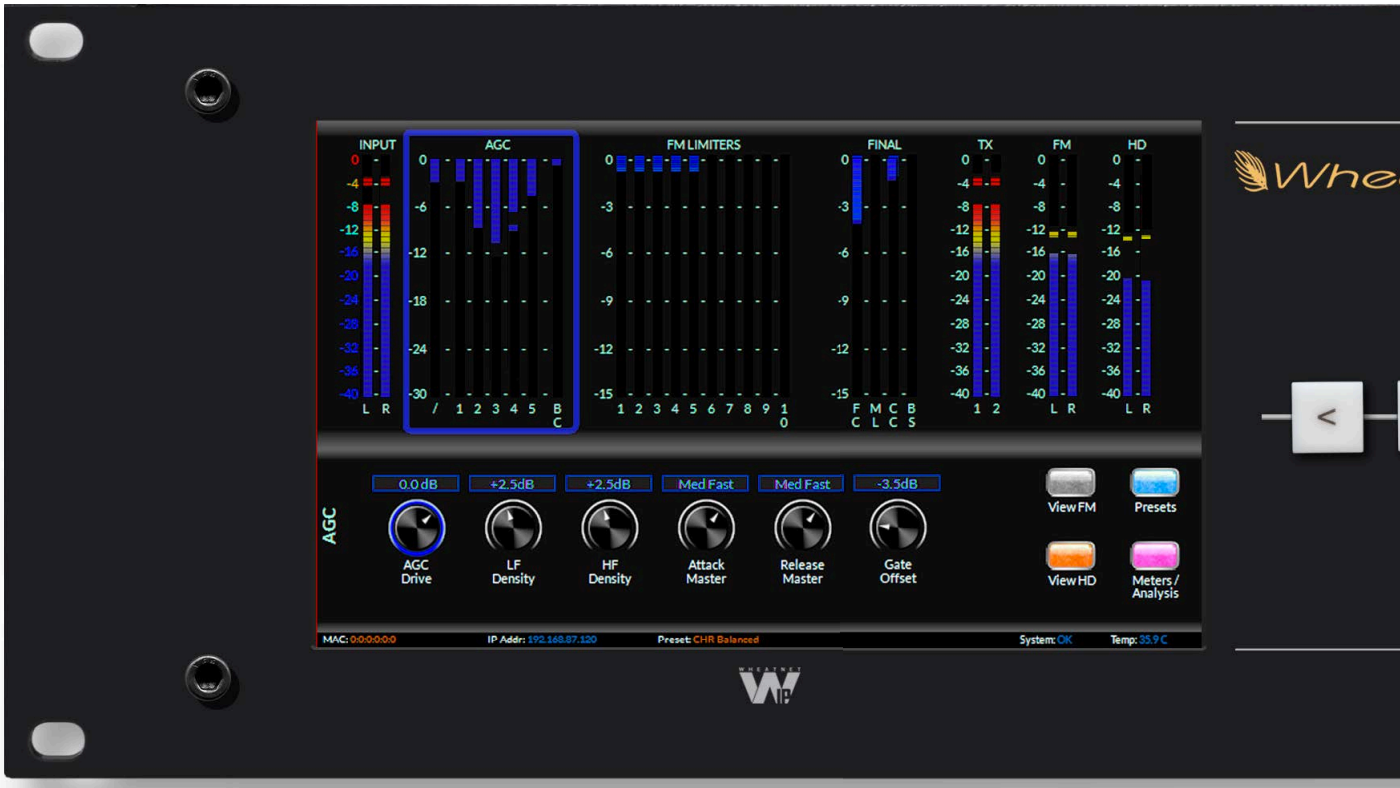
wide touchscreen displays give you new ways to control your awesome sound

AirAura X1 brings our proven technology for FM and HD processing to a very friendly price point AND a very friendly control point.

Making serious inroads into midrange priced on-air audio processing, the AirAura X1 uses all the advanced algorithms found in Wheatstone's top-of-the-lineAirAura X3 for turning up the volume without causing listener fatigue, yet comes with a user interface that doesn't require a power user to operate. "We designed in all the incredible powertools that made the AirAura X3 a popular choice in the top markets, and then equipped the X1 with newly designed PC and front panel user interfaces. This presents audio controls to the user in a clear and intuitive way that is perfect for mid- to small-market broadcasters," says Jeff Keith, Senior Product Development Engineer for Wheatstone's Vorsis audio processing line.

Golden ears sound at a midrange price. The new AirAura X1 is the first processor in the midrange price category granting access to advanced processing features via an easy-to-use interface. Intuitive adjustments made via the front panel touchscreen interface result in automatic and intelligent adjustments of behind-the-scenes processing parameters to create the sound the user desires.

A library of expertly created factory presets always keeps users in safe territory, while an advanced professional GUI allows experienced "golden ears" to delve deeper to refine the sound.



- iAGC Intelligent Audio Management measures amplitude and density for perfect leveling
- 5 Band Spectral Controller perfects tonal consistency
- 10 Band Mastering Limiter auto adjusts attack and release times based on program content
- Separate bass enhancement, EQ and Peak Control for FM and HD processing paths
- Integrated diversity delay of 0-10 seconds, adjustable in 100 µS steps
- Codec conditioning to maximize the HD radio listening experience.
- FM peak control via oversampled distortion masked clipper
- Precision FM stereo MPX generator with multiplex mask filters and dual composite outputs
- Composite audio processor increases competitiveness without MPX degradation
- Digitized SCA inputs for reliable subcarrier generation and recovery
- HD Radio Automatic Time Alignment (with compatible monitoring system)
- BS412 Loudness Management
- Analog, digital and WheatNet-IP audio I/O with automatic 'failback to primary'
- Exclusive stereo multipath controller technology for enhanced stereo reception
- Remote processor control via wired Ethernet and Windows based GUI
- Front Panel touchscreen control with Guru GUI for easy setup and processing adjustments
- Wheatstone® baseband192 built in for digital link to transmitter

the X1 toolbox (or should we call it 'treasure chest'?)

the processing power inside AirAuraX1 is like nothing you've ever seen...or heard

You've never had this kind of control in any audio processor in this price range before.

We've taken our AirAuraX3 and built on that to give you a way to knock your own socks off with your on-air sound. Presets? We've got tons, crafted by the best ears in the business. But we also give you full control in a way that's immediately usable for broadcast engineers. The result is on-air sound that will keep listeners engaged forever.

AirAuraX1: Intelligent Audio Management

The AGC (Automatic Gain Control) in a modern broadcast facility works harder than ever before. More and more often, studios are unmanned and the levels on your console become set it and forget it. If your sources aren't carefully controlled it's up to the AGC to make those corrections. But even then a competent AGC is not enough. Differences in amplitude AND dynamic range must be considered for an AGC to properly operate in "the zone". That's where iAGC comes in. Not just a leveler, the iAGC is an amplitude AND dynamics manager that helps ensure the right amount of processing is added to your source material.

Is it too dense? The iAGC relaxes the processing so that dense material doesn't sound "double processed". Does your audio need more punch? If there is a lot of dynamic range in your audio, you can choose to leave it alone, or let the iAGC make real time adjustments to "program match" your audio to yield a consistent audio signature.

The choice is ultimately yours, but the possibilities are endless!

AirAuraX1: BS412 Multiplex Loudness Manager

Our new Multiplex Power Wizard utilizes a program-dependent prediction, detection, and measurement algorithm that continuously adapts the controller's behavior to the incoming program content. The algorithm allows for the extremely tight multiplex power control desired by many European broadcasters, but without contributing noticeable or undesirable control-related audio artifacts.

AirAuraX1: 5- band Spectral Controller

Competitive audio in any market requires the use of multiband. Since the dawn of the multiband AGC/ Compressor, the goal has been to improve tonal consistency and increase loudness by making algorithms smarter and, in turn, making the effects of multiband control less audible. We have something very new and very exciting in X1 that takes that control to a new level.

Most processors have AGC or Compression or maybe both. At any given time, these algorithms are working based on user settings, regardless of the type of audio being fed to them. We sat and thought about that for a bit. We also have AGC and Compression in our 5 band processing and it's really a good performer. But how can it be better?

The iAGC in the FM55 and AirAura X3 is a very smart algorithm and we collect a lot of data from it. We can slow down and speed up the processing based on dynamic range and amplitude. But what if we could also use that data in our 5 band AGC/ Compressor to make IT even smarter?

Introducing our 5 Band Spectral Controller. Calling it an AGC or Compressor is not really valid anymore because it's both... or one or the other... or sometimes neither. In our effort to minimize processing artifacts wherever and whenever possible, the development of the 5 band Spectral Controller allows us to use the iAGC technology built into X1 to map not just amplitude and dynamic range, but also to chart spectral history. This data can be used to dynamically adjust our 5 band spectral controller to yield unprecedented tonal balance cut to cut WITHOUT the audio sounding over-equalized, artificial or "boxed in" to a signature. Of course, if consistency to the SOURCE is what you are after, that can easily be attained as well. What's the purpose of having your cake if you can't eat it?

*AirAuraX1: push your sound to the extremes of clean, sweet and loud and punch it directly into your exciter with Wheatstone® baseband**192***

AirAuraX1: 10-band Mastering Limiter

New challenges bring new ideas. It's behind everything we do at Wheatstone, and processing is no exception. You've read about how we customize audio for consistent level and tonal balance, now it's time to really get serious. Peak management that doesn't distract from the sound you're after.

Introducing another first in a Wheatstone audio processor – the 10 Band Mastering Limiter. There's one for FM and one for HD.

It starts with something that sounds pretty simple: a 10 band limiter. What's so special about that? When the limiter works in conjunction with the data pulled from the iAGC and 5 band spectral controller, things start to sound more interesting. When we tell you that the 10 band limiter makes on-the-fly decisions from the real world data we have collected to maximize clarity, things become exciting. And when we tell you the audio from each band of the 5 band Spectral Controller is managed by not ONE but TWO limiter bands to allow for more precision, the choice is obvious.

AirAuraX1: Matching the Medium

The HD and FM side of your audio processor require much different approaches for peak control and bass management. What sounds good on FM may be too much for the HD component. You want to emulate your FM signature on HD, but also make it stand out on its own. When the receiver blends to HD, the sound should have more detail and should be engaging to listen to but not SO different that it becomes distracting.

With X1, you have the tools to create on your audio canvas on both the FM side and the HD. There's no real worry that adjustments made to the 5 Band Spectral Controller will improve one path and degrade the other. With our separate 10 Band Mastering Limiters, the right amount of virtually everything is applied, matching your signature sound to the medium.

AirAuraX1: Exclusive Multipath Control

Exclusive to the Wheatstone line of audio processors is the Multipath Limiter. This single user control can help mitigate the audible effects of multipath as well as reduce receiver-induced stereo blend by limiting the amount of L-R as a percentage of L+R for a more consistent and predictable sound.

AirAuraX1: Wheatstone® baseband192:

Wheatstone® baseband192 digitizes the entire multiplex spectrum up to and including the RDS, doing away with an analog composite interface between processing and transmission.

A single AES/EBU cable carries the digitized signal between the FM-531HD and any FM transmitter equipped with a digital baseband input, bypassing the need for multiplexing in the exciter and eliminating the resulting signal overshoot and its associated loudness tradeoff.

the bigger picture

control AirAuraX1 from its touchscreen or using its GUI from miles away


FP_TEST_A
Preset On Air
FINAL LIMITING
TX OUTPUTS
FM OUTPUT
HD OUTPUT
Final Clip
Mpath Lim
Comp Clip
BS 412
TX 1
TX 2
Left
Right
MPX&Output
System
Expert - Bass Tools Tuning
Filter Frequency
Filter Style
Bass Clip Threshold
320 Hz
Broad
- 5.0 dB
Bass Texture
50.0 %
MB Limiter
View FM
View HD
Presets
List
Save
Library
Hardware
Analysis
Devices

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