# 5 hd+am ex
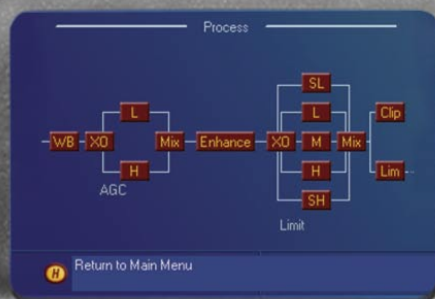
Omnia-5EX HD+AM For talk radio that really screams.

"...Our midday announcer... was ecstatic about the sound. He said, 'Watt, the bass is incredible -really deep and full - and the highs are very clear. Sounds great in my car!' We're definitely keeping Omnia-5ex hdam for WSM. The more I listen to it, the better I like it."

Watt Hairston,
WSM AM-650,
Nashville, Tennesse

▶ **The challenge that became an obsession.**

A lot has happened since the first Omnia hit the airwaves in 1995. Omnia's pure high end, thundering bass and amazing competitive loudness have helped it become the choice of ratings-dominant FM stations. In fact, more than half of the Top 100 stations in the US process with Omnia. Those same big-market FM broadcasters challenged us to build an Omnia for AM stations, so we visited legendary 50,000-watt stations in New York, San Francisco, Los Angeles and Chicago, and we found that many of those flamethrowing AM stations used highly customized analog signal processing.  So we went back to the lab to try and recreate that sound, and soon found that because we were working in an all-DSP environment, we had greater precision and flexibility than could ever be achieved in analog.  We spent hours upon hours tweaking DSP code; optimizing, adjusting and perfecting. Finally, we took our prototypes to those same legendary AMs, and a funny thing happened: they didn't want to give them back.

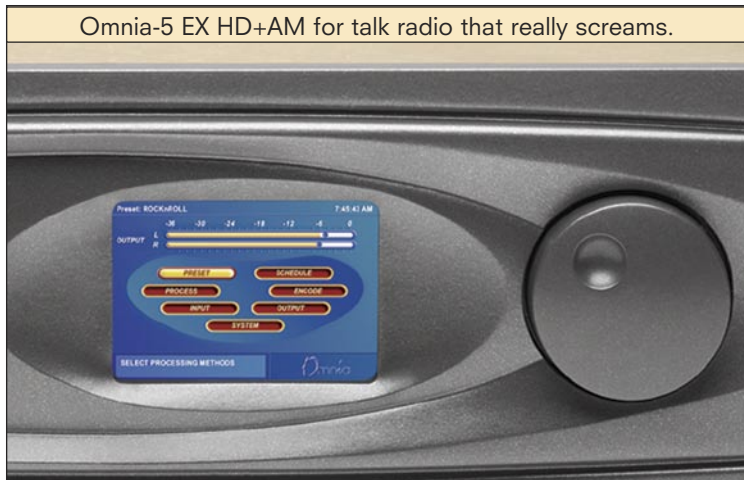Friendly control screens make it easy to get the sound you want

**When the first Omnia-5EX HD+AM processors went on the air** at some of those legendary AM stations, the engineers and programmers were impressed. They told us that they heard warmth, clarity and detail in their stations' audio that they'd never heard before. They told us their signals sounded louder, cleaner and had more presence , and some said their station's coverage had improved. Talk shows sounded clean and clear, and music literally jumped off the dial. Why such a drastic difference? Our engineers optimized Omnia-5ex hdam for the special requirements of the AM band, designing custom algorithms that enhance the performance of bandwidth-limited antennas, and they placed the pre-emphasis section behind the multi-band limiters to create a more consistent, natural sound. It's The Omnia Sound - sweet, clear, natural audio that hooks listeners, pulls them in, and keeps them coming back for more. It's all the punch and clarity of Omnia – on the AM dial.

*"Some formats or program directors may be satisfied with preliminary adjustments and that's fine. But the Omnia is such a powerful tool that you can satisfy the toughest program director."*
-John Boehm, Chief Engineer, WGCI-AM/FM, Chicago, Illinois

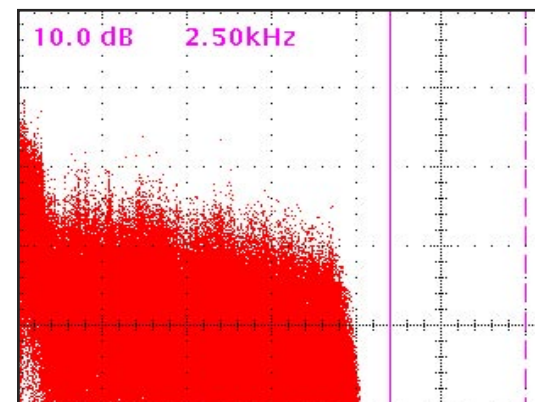Omnia-5 EX HD+AM for talk radio that really screams.



▶**Omnia-5EX HD+AM is the first digital processor designed exclusively for leading AM stations.** Its DSP architecture gives AM broadcasts increased clarity, presence and loudness... and in many cases, increased coverage as well. Your competition won't know what hit them.

**Omnia-5EX HD+AM Features include:**

• 96kHz sampling rate with 24-bit resolution – the highest sample rate of any broadcast audio processor

• Selectable, four-frequency high pass filter

• Selectable multi-stage phase rotator

• Wide-band AGC

• Two-band AGC

• Five band pre-limiter crossover

• Adjustable, over-sampled five band limiter

• Post multi-band limiter mixer

• Lookahead limited for HD Radio

• High performance, non-aliasing, distortion-canceling clipper

• Exclusive Omnia Bass Management low frequency enhancement system

• Optional Space-EFX stereo enhancement control

• Discrete, adjustable balanced analog audio outputs

• Adjustable front panel high-drive headphone outputs

• 2 AES3 output selectable for 32, 44.1, 48, or 96kHz

• AES3 input - 32 – 96 kHz

• AES3 synchronizing input

• 10/100-Base-T Ethernet port

• Software and presets stored on PCMCIA card



Omnia AM low-pass filters adhere strictly to NRSC requirements.

▶ **"I've heard the big boys are all using Omnia now. Is that true?"**

– Omnia has become the favorite processor of the top rated stations in the top US radio markets. In fact, on the top 10 rated stations in the top 10 US radio markets, Omnia is on 2 out of 3 stations... and climbing every month.

▶ **"Isn't Omnia just for big-market stations?"**

– While most Top 100 broadcasters prefer Omnia, you'll find us on many medium and even smaller market stations – anyone who wants the competitive edge of dial-dominating loudness and the cleanest, clearest audio possible.

▶ **"How long have you made processors for AM? I thought Omnia was just for FM stations."**

– Although people often associate Omnia with FM processors, AM has always been important to us; we introduced our first AM processors in 1995.

▶ **"Aren't AM processors just repackaged FM units?"**

– No. Our DSP experts and audio engineers optimized every algorithm for AM broadcasting. For instance, we carefully determinied AGC crossover points to permit building more energy in the vocal frequency range. This helps voices sound bigger,

fuller and warmer, virtually eliminating that nasally, "boomy" sound listeners complain about.

▶ **"Is Omnia-EX HD+AM NRSC compliant?"**

– Yes. Our low-pass filtering meets all NRSC standards , and ITU specifications as well. You can select 10kHz (for US NRSC) and 6kHz or 4kHz (for ITU).

▶ **"I want my AM station to sound louder. Will Omnia help me?"**

– It certainly will. Our engineers have spent years perfecting the art of making audio sound loud and clean, without annoying digital artifacts.

▶ **"But I want to be really loud."**

– No problem. Omnias are specially designed to give you dial-dominating loudness without sacrificing clarity and smoothness. For instance, Omnia-5ex hdam packs more energy into the sidebands by allowing you to output asymmetrical waveforms. More sideband energy results in extra loudness and, in many cases, improved coverage too.

▶ **"Our station has local programming in drive times and network feeds during the rest of the day. Can I change processing automatically to compensate for the different sources?"**

– Yes. A very flexible daypart scheduler is provided to help you tailor your processing to your specific needs.

Unlimited horsepower. Ready to take a spin?

**"Is Omnia ready for IBOC?"**
– All Omnia processors are ready for IBOC. In fact, we've been helping shape it since the very beginning. Omnia began tests with Lucent and USADR even before they merged to form iBiquity. Omnia processors are the only ones with a flexible software architecture; that means they're ready for whatever changing standards the future may bring.

**"What does 'flexible software architecture' mean?"**
– Some audio processors don't have an easy way for you to update software. They make you send the units back to the factory when new software versions are released. Omnia puts PCMCIA slots on every processor to help make updates easy. You can also save, store and recall settings to use on other Omnia processors.

PCMCIA slots make software updates and dialup remote control simple.

**"I don't want to spend lots of time tweaking settings; I just want to open the box, plug it in and go."**
– We understand your need for speed. Omnia processors come with a full complement of presets, tailored to specific formats, to help get you up and running fast. And when you're ready for fine-tuning, you have access to as many adjustments and parameters as you can imagine.

**"My facilities are IP networked. Can I connect Omnia to my network for remote control?"**
– Yes. All Omnia processors are Ethernet-ready. Omnia-5ex hdam has a built-in 10/100Base-T port.

**"What if I need dialup remote control?**
– You can dial up to your Omnia using the optional Omnia PCMCIA Modem Card. Omnia Remote software gives you full remote access to all processing parameters.

**"People I've talked to about Omnia have mentioned Bass Management. What is it and how does it work?"**
– Much more than just a simple EQ, Omnia's Bass Management system is a comprehensive set of tools for optimizing and enhancing the bass frequencies of your signal. Bass Management allows very fine control of deep bass, the bass clipper threshold, and more – up to 16 dB of adjustment range in all, resulting in a very loud, very clean low end.

**"I've been told your limiter uses a unique design. Can you explain what makes it different?"**
– Sure. The low and mid bands use a feedback configuration, while the high bands utilize a feed-forward design. In plain English, what this means is that Omnia gives you a larger, warmer sound in the lower frequencies while maintaining a more open, natural texture in the higher frequencies.

**"What output options do I have?"**
– Omnia-5 ex hdam is equipped with both discrete analog and AES/EBU outputs, so you can choose the output option that suits you best. The AES output can be selected for 32, 44.1, 48 or 96 kHz.

## GENERAL FEATURES

| | |
|---|---|
| Internal Sample Rate: | Up to 768kHz |
| Internal Processing Resolution: | 24-bit |
| A/D & D/A Resolution: | 24-bit |
| Maximum bands of processing: | Two-band AGC, Five-band Limiter. Independent Compression/Limiting. |
| User Interface: | Full-color active-matrix control screen |
| Computer Control Interface: | RS-232, PCMCIA modem card (optional) or networked control with TCP/ IP via Ethernet port |

## AUDIO PERFORMANCE

| | |
|---|---|
| Frequency Response: | Meets all applicable NRSC and ITU bandwidth specifications |
| System Distortion*: | <0.02% THD, 30Hz - 10kHz. |
| Signal-to-Noise Ratio*: | >80dB, 10kHz bandwidth. |

## COMPUTER INTERFACE

| | |
|---|---|
| Configuration: | RS- 232, PCMCIA modem card (optional) or TCP/ IP via 10/100-Base-T Ethernet port |
| Communications: | Remote control via Windows®-based Omnia Remote software program (download free from www.omniaaudio.com) |

## REMOTE CLOSURES INTERFACE

| | |
|---|---|
| Configuration: | Eight user-selectable remote tally functions, set via Omnia Remote software program |
| Connector: | DB-9, EMI suppressed. |

## POWER

| | |
|---|---|
| Configuration: | Universal power supply accepts 100-240VAC, 50-60Hz, 45VA. |
| Connector: | IEC detachable 3-wire power cord, EMI suppressed |

## ANALOG & DIGITAL I/O SECTIONS
(All input and output sections are standard equipment.)

### Analog Audio Input

Discrete Left/Right Audio Inputs: 10kΩ load impedance, electronically balanced bridging input, 24-bit analog-to-digital converter.

| | |
|---|---|
| Maximum Input Level: | +24dBu. |
| Connector: | XLR, female, EMI suppressed. |

### Digital Audio Input

| | |
|---|---|
| Configuration: | Stereo AES/EBU. |
| Sampling Rate: | 32 – 96kHz, sample rate converter provided. |
| Connector: | XLR, female, EMI suppressed, balanced and floating. |

### Analog Audio Output

**Discrete Left/Right:** 600Ω load or greater, electronically balanced, 24-bit digital-to-analog converter.

| | |
|---|---|
| Connector: | XLR, male, EMI suppressed. |

### 2 Digital Audio Outputs

| | |
|---|---|
| Configuration: | Stereo AES/EBU. |
| Sampling Rate: | User-selectable: 32kHz, 44.1kHz, 48kHz, 96kHz, sample rate converter provided. |
| Connector: | XLR, male, EMI suppressed, balanced and floating. |
| External Sync: | User selectable, synchronizing to external source within 32-96kHz |

## ADDITIONAL FEATURES

Two PCMCIA expansion slots (one modem, one memory) • Optional Omnia SPACE- EFX™ Stereo Enhancement System • NRSC Low Pass Filter • ITU Low Pass Filters • Multi-Position Selectable Phase Rotation • Software upgrades via PCMCIA card • User-configurable Bass Management EQ • PCMCIA internal modem optional • User presets stored on removable PCMCIA card • Programmable Daypart Scheduling • DAB ready

## DIMENSIONS AND WEIGHT

19"w x 16.25"d x 5.25"h (48.3 x 13.3 x 36.8 cm),  36 lbs. (16.3 kg), net

## WARRANTY

Two years, parts and labor, limited.

Also available for AM: Omnia-3am. Visit www.omniaaudio.com for details.