

4 Band Digital Audio Processor
Orion 462dsp



*The best choice of quality
for a low cost digital audio processor.*

A new
landmark in
high quality
FM radio

The stereo coder of the 462dsp is a new advanced technology with 16x oversampling with the lower distortion and large dynamic range of the market.

It is the only processor that offers the crisp sound of the digital technology and of the sound of Hi-End Audiophile Audio Systems.

We have applied in this unit our 35 years of experience developing audio processors for broadcasting, because we are the older world company, with more experience in this field.



The Orion-462dsp is the processor that many **AM** and **FM** radios were looking for to enter the digital era, still having little money. With the **462dsp** an excellent audio quality is obtained, impossible to reach with standard analogical processing.

The coverage area of your radio, both in **AM** and **FM**, will be increased up to **50%**. The processor supports analogical balanced inputs and digital **AES-3** inputs (optional). It has dual output: **MPX** out for **FM** transmitter and simultaneous balanced analog outputs for Internet streaming.

It has 30 memories to store your favorites processing programs (20 preset memories, factory adjusted to go immediately On-Air). All adjustments can be made, in few minutes, from the front panel, using a

scrub wheel and following the instructions on the **LCD panel**. You can assign a password to the system to avoid that somebody changes your adjustments. Also, the processor has a **RS232** port to connect it to a computer for remotely commute the programs. The **462dsp** replaces 10 audio processors, thus surpassing to many digital processors of greater cost.

The stereo coder of the 462dsp also was object of a new vision, different from the used by other great brands. In order to obtain those specifications, that will astonish your Radio engineers, and your own ears, we have chosen to create a new technology doing oversampling at 608 KHz, that allows us to send very high the overtones of the **MPX** process, being able to set the cutoff filters to 320 KHz (instead of conventional 67KHz). It manages a perfect phase response with 75 dB channel separation and distortion below 0.003%, free of alias and spurious components.

Increase the coverage of FM stereo radio

With **462dsp** the coverage area of a **FM** stereo radio increases from **50% to 80%**. This effect is well known to all users of our processors. But if you wish for scientifically proofs, please ask for a copy of our March 2007 **AES** paper.



Processor Backside Details

The **462dsp** has option for digital inputs and outputs (**AES3**). Also have **MPX** output and simultaneous analog balanced output for Internet streaming. **RDS** generator is also an optional feature



The old problem of the humming due ground loops does not exist in our processors, because the **MPX** out is differential and provides **45 dB** of hum cancellation.

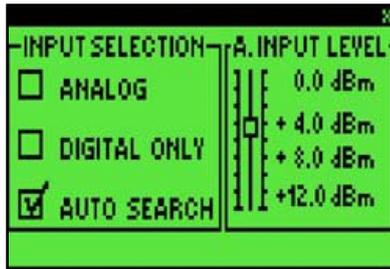
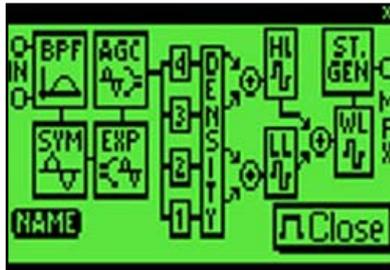
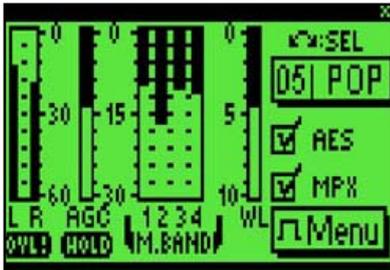
Another facility that you will not find in any other processor is the **MIC Start** input. It allows that, whenever the microphones are opened, the **462** changes to a special **VOICE** program that allows obtaining the perfect processing for the voice of your speakers.



At the same time, the **RS232 / USB** interface from **PC** allows the air automation software controlling the **462** in order to change to one of the **30 stored programs** that best fit the musical style. The best processing setting for Jazz is not the same that for Rock & Pop or promotional Ads..



30 diferent programs with easy controls and self-explicative screens



The 462dsp stores 30 different programs, 20 are fully adjusted at factory. You can change programs or invent others with self-explicative screens.

Remote Control from PC using Virtual Rack Technology

The 462dsp can be remotely controlled from a PC using our exclusive Virtual Rack software.

It is fully interactive with the user and looks like a real rack, easy to use (not only for engineering trained people).

Even better, the processor could be controlled from the Radio Automation Software. Then each musical tune will have the perfect processing that fits their music style. Only Solidyne brings you this technology.



Listen our audio demos in web site section English/Audio Processors/DEMO.

Technical features



1-SUBSONIC FILTER Suppress audio frequencies below 25 Hz, to avoid distortion on the receivers.

2-EXPANDER Increases the dynamic range of the program signal on the air, suppressing the background noise taken by the microphones.

3-GATED COMPRESSOR (AGC) Gated compressor with broadband range and slow action to maintain constant the level of audio. Free to your operators of the responsibility of continuously readjust the level of the faders.

4-PEAK SIMETRIZER Works based on Khann-Bonello criteria. It duplicates the radiated power for the human voice, avoiding the asymmetry produced by effect of the vocal cords characteristics.

5-MULTIBAND COMPRESSOR Operates in 4 bands, increasing the loudness perceived by ours ears. It grants strenght sensation and loud and solid sound quality.

6-MULTIBAND LIMITERS This limiter acts over fast peaks, working in 4 bands to reach an inaudible action.

7-FOUR BANDS EQ The audio equalizer works controlling the sound energy (not the level) to obtain an effect impossible to reach with conventional equalizers.

8-DIGITAL STEREO CODER Our exclusive 16x oversampling technology gives the 462 a direct MPX link to the FM exciter. For the first time, the ear is not able to perceive the 0,003% distortion of the stereo coder. With 95 dB dynamic range and 65 dB channel separation, we guarantee a digital audio quality on-air.

9-SUPERMODULATION This technique, created by Solidyne, is based on MPX processing, and allows to obtain up to 150% of audio signal in each stereo channel, but maintaining in 100% the deviation of the FM carrier.

10-Digital AES-3 In/Out Optional AES-3 digital Inputs and Outputs with simultaneouns analog output for IBOC and DRM digital FM transmission.



Techs Specifications



A-Orion 462dps Audio Processor

Analog Input 600/10 K balanced XLR 50 dB CM Rejection 20-15 KHz. Input level selected by software in 1 dB steps. Sigma-Delta converters 24 bits / 192 KHz

Digital Input Optional AES-3 digital balanced input Z=110 ohms. Automatic selection of 32, 44,1, 48 & 96 KHz with sample rate converter (128 dB Dynamic Range, -117 dB THD) to avoid jitter

Analog Output 600 balanced XLR, output level + 4 dBu

Sigma-Delta converters 24 bits / 192 KHz Digital Output Optional AES-3 digital balanced output, Z=110 ohms FS=32/44.1/48 KHz; Standart=48 KHz

MPX Output From 2 vpp to 5.5 vpp in 15 steps selected by software from LCD screen

Processing Technology DSP (Digital Signal Processing)

Total CPU power 2.700 MIPS

MPX Post-Processing SuperModulation exclusive Solidyne technology, at 608 KHz oversampling. Fast clipper DC-10 Mhz wideband channel to avoid audible artifacts

Frequency Response 20-15.000 Hz +/-0.25 dB. Flat mode XLR out or digital AES-3 Out. Output without pre-emphasis

Harmonic Distortion (THD) THD below 0.005 % (30-15 KHz, Flat Mode)

Noise Dynamic Range= 95 dBA

Stereo Separation 75 dBA @ 30-15.000 Hz

Subsonic Filter Chebyshev FC=20 Hz; 25 dB rejection at 10 Hz

Asymmetry Canceling Phase processing technology with Kahan-Bonello algorithms. Cancelling Factor=8:1

Linear Expander Range=20 dB Attack time < 1 mS. Release: 200mS

Gated Wide-band AGC Range=30 dB. Attack

/ Release time & Treshold controlled from LCD screen.

Multiband Compressors DSP controlled by software. Four Bands, Crossover= 24dB/oct Max compression = 30dB. Slope = 10:1

Compressors Attack/Release Time Software controlled by user from LCD screen. Attack and Release controlled by separate.

IM Canceled Clipper IM canceling factor : greater than 30 dB below 250 Hz

Fast Clipper Absolutely alias free using DC-10 Mhz bandwidth channel

Audio Equalizer Four bands audio equalizer with 20 dB range at the output of multiband compressors

Super Modulation MPX processing for stereo interleaving, allows for 150% L & R audio level at 100% modulation

Low pass filter 15 KHz digital lowpass FIR filter, 50 dB rejection at 19 KHz

Storage of Preset Settings 30 programs that can be changed on-air from PC computer using the 462 serial port

RS-232 PC control RS232 serial port. It can be connected to USB bus with optional external adapter.

RDS Encoder Optional built in RDS encoder

AM & FM compatible The user is able to insert two socket mounted ICs to change between AM and FM modes.

Stereo coder is a separate module

LCD Display Graphic, green color LCD display with backlight.

Processing Bands and stages Four processing bands. Nine processing stages

Power 90/127V and 190/230V; 50/60 Hz, selectable from rear panel

Dimensions 483 mm Wide 240 mm Deep, 88 mm High

SC-100 Digital Stereo Generator 16x Oversampling Very Low Distortion

Audio Input Impedance: 600/5 kOhms

Audio Input Level: 1,5 V rms for 5 Vpp at MPX out @ 400 Hz

MPX Output: Differential output, BNC connector, floating ground 50 ohms. Allows 45 dB canceling buzz & noise due to ground loops.

Composite Output: Level: 2 - 5.5 Volts pp, adjustable from LCD display

Frequency Response: 20-14.000 Hz +/- 0,1 dB Elliptical low pass filter; -1 dB at 15 kHz / -70 dB at 19 kHz.

Audio Input Filtering: 15 kHz, active FDNR filter 5 poles, elliptical.

Total Distortion: 0.003 % at 1 kHz.

Signal to Noise Ratio: 95 dBA or better, Ref 100% modulation.

Stereo Separation: 75 dB at 400 Hz / > 70 dB; 30-15.000 Hz.

Crosstalk: Main to sub & sub to main due to amplitude and phase nonlinearities of left and right channels, 30-15.000 Hz; 65 dB minimum, below 100% modulation.

38 kHz Suppression: 75 dB minimum below 100% modulation.

57, 76 and 95 kHz Suppression: 75 dB minimum below 100% modulation.

76 kHz Sideband Suppression: 75 dB minimum below 100% modulation.

Pilot Level: Adjusted 7-12 % from rear panel preset control.

Pilot Protection: 70 dB at 19 KHz.

Pilot Stability: +/- 0.05 Hz, 0 to 50 °C.

B- 462dsp / AM Audio Processor

This is an advanced unit for AM transmitters that offers:

One balanced stereo output (20 Hz - 15 KHz) for Internet streaming or Hi-Fi recordings

Two independent balanced analogical outputs for A.M. transmission.

A.M. TX outputs has NRSC1 equalization and low-pass cutoff filter, commutable between 7 kHz & 5 kHz. Both A.M. outputs allow asymmetric modulation to increase the power and coberture of the emissions. While the negative modulation keeps always at 100%, the positive one can vary digitally between 100% and 150%, controllable from LCD screen. The advanced

asymmetric clipping system with double stage of Log clipping, an invention of Solidyne, allows to increase to the transmitted power.

The 462dsp/AM fulfills standard **NRSC-2 of spurious irradiation in A.M.**

462dsp/AM/AES; for DIGITAL AM transmissions
This model is oriented to the transmission of digital AM in simulcast using IBOC or DRM technology. 462dsp/AM/AES has digital AES-3 input / outputs for direct connection to the digital transmitter, with a bandwidth of 15 KHz in stereo, and simultaneous analog outputs for conventional "in band" transmission.