Five band DSP Digital Audio Processor

562 DSP Evolution

A new landmark in high quality FM radio

A state-of-the-art digital processor for AM & FM broadcasting, at a price that You can afford.

Integrally made with DSP technology of 4th generation. Five Bands, 48 bits digital processing and an innovator clipping method of 4 channels with 10 MHz of bandwidth.

It is the world only digital processor that brings your radio the audio quality of Hi-End units for audiophiles

The processor 562dsp Evolution *is the top-of-the- line of the famous Solidyne line of audio processors. Now with the 3D surround sound of SRS WOW.*

We have applied *in this unit our 40 years of experience developing audio processors for broadcasting, because we are the company with more experience in the field of the investigation and development of new technologies in processing.*

The 562 is 100% digital, *equipped with several DSP units (Digital Signal Processor) that have a total power of 3.200 MIPS (million calculations per second). But, which is more important, the 562 uses DSP of fourth generation, that eliminates the rough digital sound and annoying artifacts, characteristic of the digital processors of the present market. The unit uses converters of 24 bits @ 192 KHz and the processing is made at 48 bits, to eliminate the "truncate error" that the audiophiles do not wish to listen.*

We recommend you *to listen our Sound Demonstration (Menu at left). You will verify that the 562dsp is the only FM processor that offers the crisp sound of the digital technology, bringing deep bass and high stereo definition, characteristics of the sound of Hi-End Audiophile Audio Systems.*

The stereo coder of the 562dsp *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 over-sampling 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 53 KHz). It manages a perfect phase response with 75 dB channel separation and distortion below 0.003 %, free of alias and spurious components.*

Rear panel view of 562dsp

The 562 DSP *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 562 changes to a special processing 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 562 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.*

An optional Ethernet input *allows controlling the 562dsp from any point of your LAN network or directly connected to Internet*

Very easy to control using the well designed graphic display
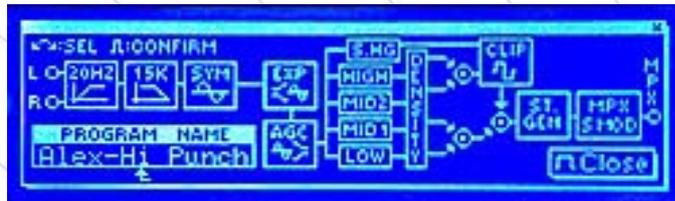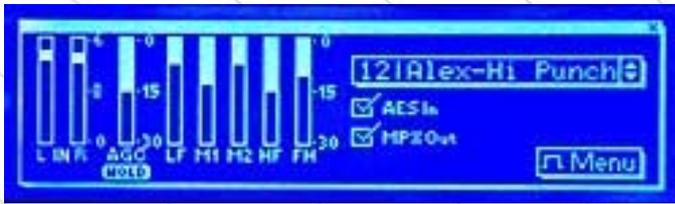
Increase the coverage of FM stereo radio

With **562dsp** 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.

Powerfull range in FM radios

Brief Technical Data

1- Five Bands Digital Audio Processor with 10 processing stages.

2- Digital stereo encoder, 16x oversampling at 608 KHz Floating MPX output for hum canceling. 75 dB stereo separation with less than 0,003 % of THD distortion

3- Optional RDS encoder

4- Optional Digital input/output AES3 with sample rate converter (128 dB Dynamic Range, -117 dB THD) to avoid jitter. It accepts sample ratios from 32 KHz to 96 Khz

5- Analog balanced inputs and outputs with advanced Sigma-Delta converters 24 bits / 192 KHz sampling

6- Internal DSP processing at 48 bits, 96 Khz (288 dB Dynamic Range).

7- Exclusive four channel wide band clipper with DC-10 MHz bandwidth, equivalent to 32 bits at 20 Megasamples, to eliminate the annoying sound artifacts that others brands have.

8- DSP Calculation Power: Total CPU power is 3.200 MIPS.

9- Large LCD Graphic Display with intuitive presentation based on real Block Diagram.

10- Serial port for PC remote control from RS232 bus (or USB, using adapter). Optional Ethernet bus allows for LAN or Internet remote control.

11- It can store 30 different processing software programs, that can be remotely switched from PC (The automation software is able to switch different processing programs for different kind of music or spots).

12- Automatic processing of speaker's voices when the console MIC fader is open.

3D Surround Sound *will distinguish your radio station among other radios.*

562dsp is the only broadcast processor in the world that has the license of SRS Labs, for its exclusive system SRS(O) used in Cinema and high performance recordings.

The new processor 562dsp is able to generate three-dimensional sound spaces. Using the same technology used in the systems of virtual reality at the NASA or at the modern cinematography.

This audio enhancement feature immerse the listener into a new experience.

SRS WOW® accomplishes this by providing a panoramic three-dimensional audio image while increasing perceived bass response well beyond the low frequency limitations of the receiver's speakers.

FOCUS® It expands the audio stereo image in the vertical plane; elevating the perceived height of the audio source (loudspeakers). As the value is increased, improves the "brightness" and "presence" of the sound.

3D WIDTH® It expands the apparent size of the stereo image; the positioning of the sounds expands reaching an opening of 180 degrees without concerning the real
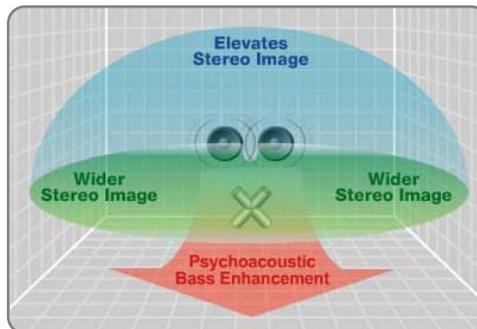
separation of the loudspeakers. It places to the listener into the recordings studio or even into the scene.

TruBass® It increases the perception of the low frequencies beyond limits of the loud-speakers.
This technique recreates the perception of fundamental low frequency notes without using a subwoofer. Obtaining deep and powerful basses that extends up to one octave below the cut-off frequency of the loudspeakers. Surpassing the limitations of low frequencies that present the portable radios and headphones.

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

Remote Control *from PC using* **Virtual Rack** *Technology* ↗

The **562dsp** 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. If you wish to see a demo software about the **Virtual Rack**, please go to our website.

You can download the 562dsp user's manual, which have detailed explanations. Select ENGLISH at the main menu of this site.

Listen a BD audio demo at our wedsite.

Technical Specifications

A new landmark in high quality FM radio

A- Procesador 562dps Evolution

Analog Input: 3 600/10 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. Five 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.
Space Effects Processing: 562 has the SRS Labs, California, license for SRS WOW technology (3D space, super bass, sound elevation).
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 562 serial port.
RS-232 PC: control RS232 seriel port. It can be connected to USB bus with optional external adapter. Optional Ethernet bus connection.
Ethernet conection: Optional RJ45 port, for direct connection to Ethernet. Allows the 562dsp to be remote controlled by direct connection to Internet modem.
RDS Encoder: Optional built in RDS encoder
AM & FM compatible: The user is able to insert two socket mounted ICs to change betwen AM and FM modes. Stereo coder is a separate module
LCD Display: Blue color, LCD display with backlight. Graphic type. Resolution 240 x 64.
Processing Bands and stages: Five 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.

B- 562dsp / AM Audio Processor

This is a top of the line 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 cobertura 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 562dsp/AM fulfills standard **NRSC-2** of spurious irradiation in A.M.*
562DSP/AM/AES - DIGITAL AM

This model is oriented to the transmission of digital A.M. in simulcast using IBOC or DRM technology. 562dsp/AM/AES has digital AES-3 input / outputs for direct connection to the digital transmitter, with a bandwidth of 15 KHz in stereo.

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 Eliptical low pass filter; -1 dB at 15 kHz -70 dB at 19 kHz.
Audio Input Filtering: 15 kHz, active FDNR filter 5 poles, eliptical.
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.

Optional RDS Encoder

RDS/RBDS signal Conforms to CENELEC EN50067.
RDS signal bandwidth +/- 2.4 kHz (50 dBc)
Spurious suppression >90 dB
Harmonics suppression > 80 dB
Clock reference pilot tone
19 kHz pilot PLL lock bandwidth +/- 2 Hz
Data connector RS-232 D9 bidirectional
Data speed software switchable 1200-9600 kbps.
Communication mode 8 data bits, no parity, 1 stop bit.
EEPROM memory capacity 32 KB
Supported services PI Program Identification, M/S Music/Speech, PS Program Service, PIN Program-Item Number, PTY Program Type, ECC Extended Country Code, TP Traffic Program, RT Radiotext, AF Alternative Frequencies, TDC Transparent Data Channels TA Traffic Announcement, IH In House Applications, PTYN Program Type Name, ODA Open Data Applications, DI Decoder Identification, CT Clock-Time and Date, EON Enhanced Other Networks information.