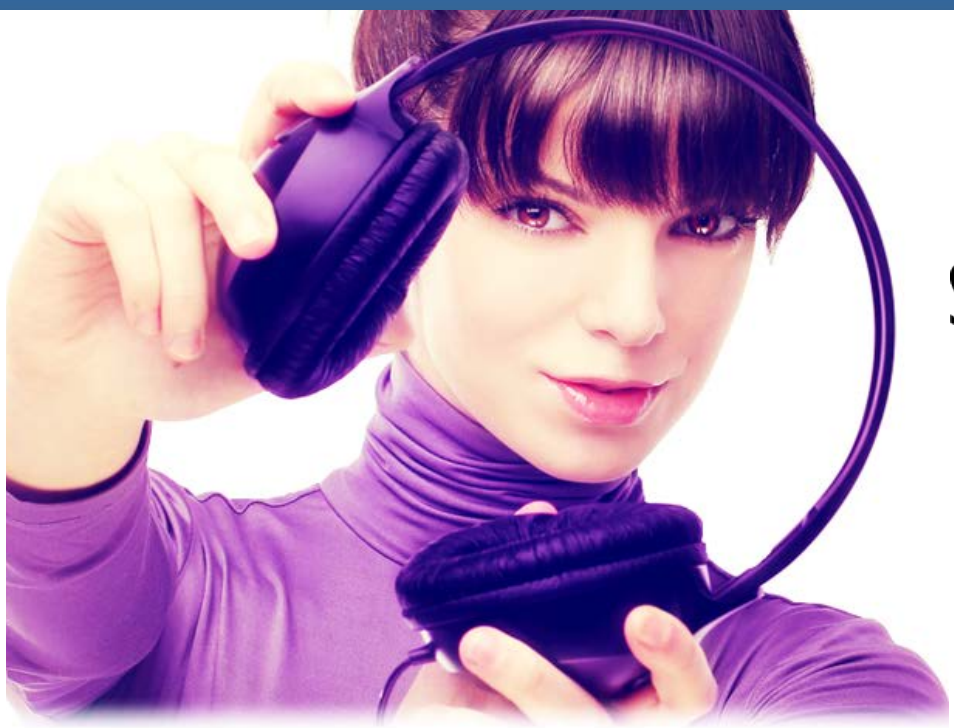


SOUND4 IMPACT

6-Band FM/HD Processor - The Big One!

Positioning in the product line...

The SOUND4 IMPACT is the biggest FM / HD processing product in PCIe card in the product line.

Concentrate of technology, the SOUND4 IMPACT is a multi-fonction product : besides being an FM processing fireball, it also has several options which are sold 30 to 50% cheaper than external product : Basic and Full RDS, WebRadio Streaming, SOUND4 IP Connect (IP codec), local audio backup... Just make the comparison by adding all these functions as external products + a “big FM processor”, you will get a saving of 30 to 40%!

The SOUND4 IMPACT is also the first product in the range having unique features that significantly improve FM reception in degraded environments. When developing the product, 100% of the users who participated in the tests in critical environments found a significant improvement in terms of reception, that’s the guarantee to gain more audience in places where frequencies are disturbed.

The SOUND4 IMPACT PCIe card...

- 100% autonomous in terms of resources, the card only requires power from the PC.
- 4 inputs: AES from 32 to 192kHz, analog, IP (Livewire or SOUND4 IP CONNECT) and PCI (audio driver).
- Mixing of inputs and automatic safety function.
- 5 simultaneous and independent outputs: TX1, TX2, AES, Analog IP (Livewire or SOUND4 IP CONNECT) and PCI (audio driver)
- Routing of signals for outputs.
- Relay switch for automatic by-pass.
- Digital AES/EBU synchronisation input.
- DSP computing power: 4 Giga Flops (Sharc 40 bits with floating point).
- GUI and driver compatible 32 & 64 bits(Windows 7, Windows 8 & 8.1, Windows 10, 2008 R2, 2012) and Linux (Debian).
- Multicard driver (the quantity of PCIe slots will be the only limit to the number of cards admissible in the same PC).
- Start-up time of the SOUND4 IMPACT card: 2 seconds max to be On Air!
- Ready for the future: 100% upgradeable and fast. While updating the card, the sound is interrupted for only two seconds.

A revolutionary processing chain...

The SOUND4 IMPACT incorporates a unique processing chain with innovative approach which is even described as revolutionary by its first users.

Everybody complain of loudness variation problems between old and new titles. In some cases, the auditor may even feel to switch radio during sequences of Golds and recent titles… This is a concern for many program managers, because a changing sound leads to a loss of identity, and the auditor does not recognize his radio...

With SOUND4 IMPACT you can just forget all these inconveniences, the 2-band AGC is based on the signal strength and no longer on the electrical average values, it automatically detects differences in loudness to smooth out variations in sound perception. Its 2-band structure ensures perfect stability, the vocals are enhanced while ensuring a good bass presence.

Another problem frequently observed in FM comes from variations in perceived levels of reception when the moving receiver switches from stereo to mono and vice versa. These changes affect the tone (loss of treble) but also the overall level of sound perception, so the sound "goes up and down" in addition to a “changing sound”...

The SOUND4 IMPACT incorporates an innovative process: mono and stereo parts of the signal are processed separately to obtain a perfect homogeneity in terms of both sound and level. Therefore in moving reception, when the FM receiver switches Stereo / Mono / Stereo, the sound variations and changes in level are reduced by over 90%! In the SOUND4 IMPACT processing chain the stereo expander can then be used substantially without restraint.

A 3-band limitation section after the 6-band processing of dynamics: yet another different choice from all other products on the market. Why only 3 bands ? Just because the outputs of the limiter are added and then feed the final limiter. The facts are simple, the sum of signals on three bands induces less variation in levels than 6 bands. The final limiter job is then more stable and therefore less subject to distortion when the processor is used for very important loudness.

On the loudness side, the IMPACT is a real monster, it is able to compete with the biggest market products. The structure of the final limiter consists of 3 limiters: one for basses + one for FM + one for the MPX. This is guaranteed to reach the expectations of demanding managers programs.

An optional IP Audio Codec Solution...

The SOUND4 IMPACT has an empowered audio IP transport built-in option which allows to carry audio signals into IP from the studios to multiple transmitters. This option is called SOUND4 IP Connect, and can carry a signal up to 32 destinations!

It is possible to re-broadcast a Link to other locations without decoding and re-encoding. Security is at the heart of SOUND4 IP Connect: backup links with automatic switching, multi-gateway to use several modes of transport on the same card, alarm management with SNMP and Alarm Stacker...

A Basic or Full RDS encoder...

The SOUND4 IMPACT optionally includes a basic or a full RDS encoder, the latter being compatible UECP. At least the “Basic” RDS allows scrolling PS!

Six Streaming Encoders...

The SOUND4 IMPACT is ready for Internet radio broadcast on all media. It has six fully configurable encoders supporting MP3, AAC, HE-AAC v1 and v2. This option is compatible with most popular servers (Icecast, Shoutcast, Flash, Wowza...).

Better yet, this option has the Adaptive Process for very low bitrates (ie: HE-ACC 24kbps). In this case a compensation algorithm corrects in real time the codec in order to lose the least amount of quality: it is surprising to hear, you would not believe it’s very low rate!

An integrated Audio Backup solution…

Much more than a mere processor, the SOUND4 IMPACT has Audio Backup functionalities. The only limit will then be the capacity of the hard disk to store audio files. It is thus the first processor that guarantees continuity of the On Air program!

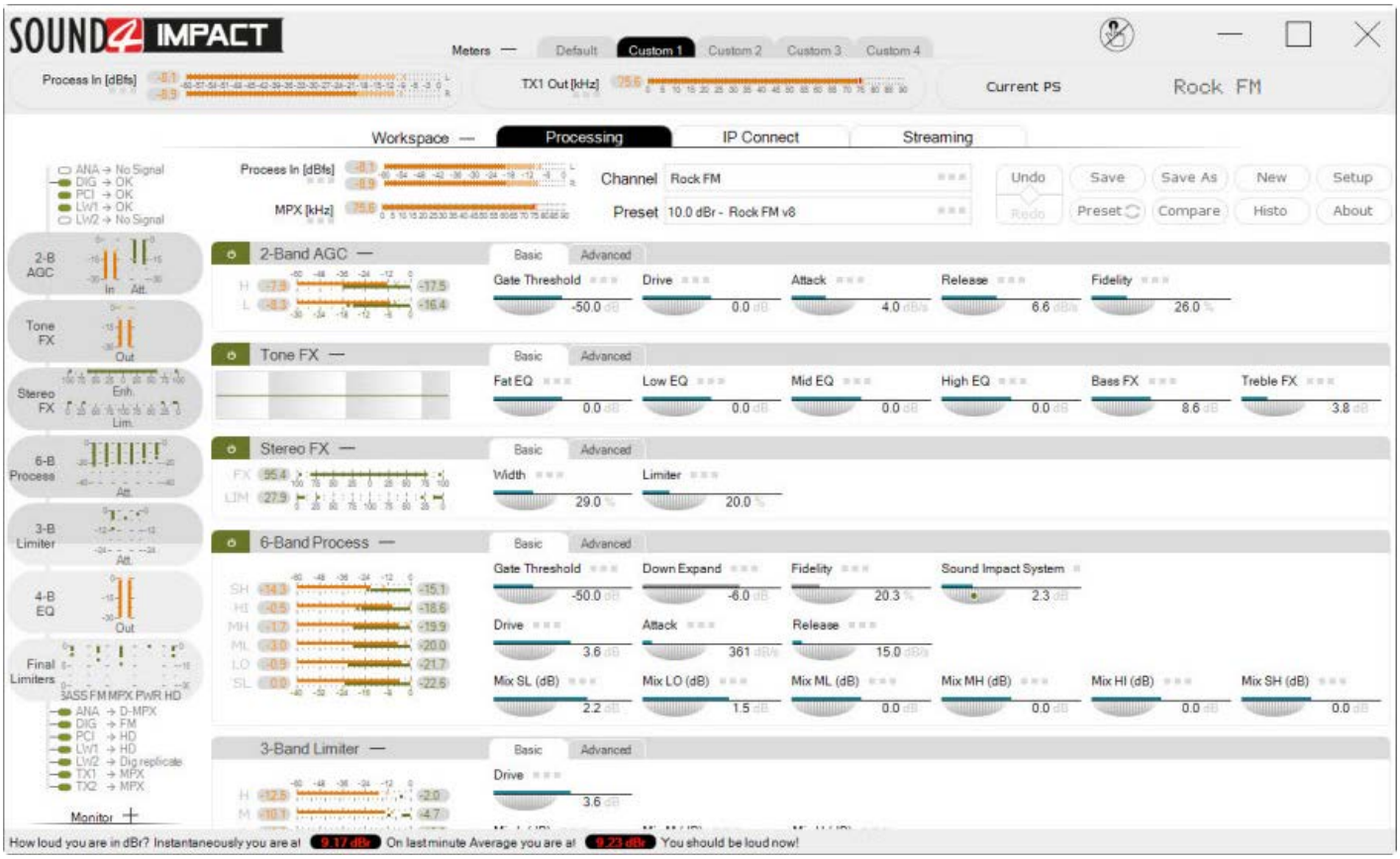
Link&Share...

Like all PCIe card products, SOUND4 IMPACT is compatible Link & Share. This is a Telnet-like protocol that makes integration easier. 100% of the parameters are externally accessible, it is even possible to create scripts that will be sent by the broadcast automaton to change a PS, change an input in mix mode, change an IP route, an audio Preset... Everything is possible!

A hyper user-friendly control interface…

- Setting of sound from one single screen! No more opening and closing of windows for going from one function to another.
- “Easy” mode and “Full” mode: Easy – the mode where everything is simple and rapid; Full, for exploring all the processor functionalities. Ultra-rapid vu meter for true control over modulation.
- versioning function for presets with unlimited “Undo/Redo” and possibility of recall.

- Innovative “compare” function with notion of reference .
- Log function for presets.
- A readable and interactive diagram.
- A remote connection manager to control several processors.
  Works on operating systems: WXP SP3, W7 32& 64 bits, W8 32 & 64 bits, WS 2008 R2, WS 2012, Linux (Debian)



Processing...

HQ Sound, Main sampling process frequency 192 kHz.

- 2-band AGC
- 4-band EQ + Tone FX and Stereo FX.
- Stereo enhancer
- 6-band process with Fidelity and Sound Impact System (S.I.S).
- 3-band limiter.
- 4-band EQ
- Final limiters
  - FM path: Bass Clipper + FM Limiter + MPX Limiter
  - HD path: Look Ahead limiter for the HD outlet.
- BS412 compliant MPX power controller.
- Ultra low delay: 30 milliseconds

Others key points:

- Stereo Matrixing for a better stability in loudness and sound tone when the receiver switches from momo/stereo/mono.
- 19 kHz Embedded pilot to gain close to 1 dB in loudness

Extra...

- Basic RDS encoder (with scrolling PS)
- Full RDS (UECP compatible)
- IP Codec: SOUND4 IP Connect
- Audio Backup (function made possible thanks to our audio driver).
- Audio streaming: 6 encoders (MP3, AAC, HE-AAC v1 & v2), compatible with all delivery servers (Icecast, Shoutcast v1 & V2, Flash, Wowza...)
- Replication of inputs.
- Link&Share : 100% of parameters are accessible through telnet protocol
- Pannels: to create your own pannels with unlimited fonctionality
- Preset Sharing: The ultimate solution to manage unlimited number of processors and get all automatically updated if a modification is done on one...

State of inputs...

The SOUND4 IMPACT has four inputs: Digital, Analog, IP (Livewire or SOUND4 IP Connect) and PCI.

On the software interface, the currently used input is indicated by a triangle on the left side of its name.

2-Band AGC...

In the SOUND4 IMPACT, the first processing function is the “2-Band AGC”: it is an automatic gain control which main purpose is to "stabilize" the loudness level applied to the input of the processor to rub out noticeable level differences between recent and old titles.

The Tone FX...

The “Tone FX” makes coloring of sound possible before dynamic processing. To do so, it groups together two types of processing functions:

- A 4-band parametric equalizer;
- An effect system making possible to strengthen low frequencies and high frequencies.

The two functions offer results that are entirely different. In “Basic” mode, use of the four parametric equalizers is simplified to the maximum. Only the gain for each correction is accessible. For “FX Bass” and “FX Treble”, dosage of the effect is also made accessible. In “Advanced” mode, you have access to all the parametric equalizer parameters (gain, frequency and Q factor).

The Stereo FX...

SOUND4 IMPACT has a true stereo enlarger, 100% mono compatible. Its role is to sublimate the existing stereo image. It will thus never create stereo on mono sources.

In addition to embellishing the stereo image, it has a 6-band stereo image limiter acting on the control of the energy transmitted by the stereo sub-carrier at 38 kHz. This unique functionality thus limits annoyances currently occasioned by the traditional enlargement processes. The stability of reception in areas disturbed by multiple path is thus very greatly optimized.

The "6-Band Process"...

The “6-Band Process” is the heart of the dynamic processing of SOUND4 IMPACT. A single algorithm guarantees the gain in each of the bands in order to complete sound stabilization. “Coloring” is controlled by the Fidelity parameter: thus, it is possible to have a purist and colored sound texture.

The “6-Band Process” is featured with the revolutionary algorithm S.I.S (Sound Impact System), which makes possible to maintain the authenticity of the original sound attacks.

The "3-Band Limiter"...

The first purpose of the “3-Band Limiter” is to prepare the work of the Final Limiter. It is also provided with a very powerful predictive algorithm, which has been simplified to the maximum in order not to be encumbered with useless parameters.

The 4-band Parametric EQ...

The icing on the cake... The parametric 4-band equalizer is not there to "build a sound", it allows some last little touch up if necessary before the final limiting section.

In “Basic” mode, use of the four parametric equalizers is simplified to the maximum. Only the gain for each correction is accessible. For “FX Bass” and “FX Treble”, dosage of the effect is also made accessible. In “Advanced” mode, you have access to all the parametric equalizer parameters (gain, frequency and Q factor).

The "Final Limiter"

The "Final Limiter" comprises two sections, one for FM applications, another for HD application.
Section for FM firstly consists of a "Bass Clipper" which guarantees powerful bass without distortion, then the FM limiter and the MPX limiter.

Section for HD is specifically designed for high quality digital applications (HD / DAB / DRM), it is a Look-Ahead type limiter. In this mode the outputs are not limited to 15kHz.

Assignment of outlets

The outlets of SOUND4 IMPACT are fully assignable. For example the analog outlet may replicate the signal which is applied on the analog input, the digital outlet delivers an HD signal, the TX1 outlet delivers the MPX signal and the TX2 outlet drives the 19kHz pilot signal.

Analog Input

Quantity	1 stereo
Level	2 ranges: +12 or + 24 dBu (software selectable)
Impedance	10k
Connector	XLR female balanced and EMI suppressed

Digital Input

Quantity	1 stereo
Standard	AES 3
Sampling Rate	32 to 192 kHz - 24 bits
Connector	XLR female balanced and EMI suppressed

AES/EBU Input Sync

Quantity / Connectors	1 BNC female connector
Sync type	Word Clock - 32 to 192 kHz
Level	1 to 6 volt

SCA/RDS Input

Quantity / Connectors	1 BNC female connector
type	Adder

Analog Output

Quantity	1 stereo
Level	2 ranges: +12 or + 24 dBu (software selectable)
Load Impedance	typical 10k - maximum load impedance 300 ohm at 24 dBu
Connectors	XLR male balanced and EMI suppressed

Digital Output

Quantity	1 stereo
Standard	AES 3
Sampling Rate	32 to 192 kHz - 24 bits
Connector	XLR male balanced and EMI suppressed

Stereo Generator Outputs

Quantity	2 separate outputs which can deliver MPX or 19 kHz pilot
Level	2 ranges: +6 or +18 dBu
Load Impedance	typical 600 ohm - Max load : 35 ohm at +18 dBu
Connectors	BNC female - EMI suppressed

Audio Performances

Processing delay	HD path: 11 ms, FM path: 30 ms
Frequency responce	30Hz - 15 kHz +/-0.2dB (de-emphasized measured on Analog output)
Noise	>90 dB (de-emphasized)
Distorsion	<0.2% THD (de-emphasized)
Separation	>70 dB
Sub to Main crosstalk / Main to Sub crosstalk	>75 dB

Audio Driver (Input & output)

Linux (Debian)	Alsa
Microsoft Windows	WDM/Direct Sound compatible 32 & 64 bits: Windows 7 - Windows 8 - Windows 10 - Windows Server 2008 R2 - Windows Server 2012

PCI express Card

Standard	PCI express x1 (compatible with x2, x4, x8x, x16 slots)
Board power supply	Connector type Molex IDE 4 pins male
Board consumption	10 watts typical, 30 watts when all outputs are loaded to max
Size	185 x 106mm (without connectors)

Compatible Operating System for SOUND4 PCIe cards

Linux	Linux (Debian)
Microsoft Windows	32 & 64 bits: Windows 7 - Windows 8 - Windows 10 - Windows Server 2008 R2 - Windows Server 2012

Compatible Operating System for SOUND4 Remote Software

Linux	Linux (Debian)
Microsoft Windows	32 & 64 bits: Windows 7 - Windows 8 - Windows 10 - Windows Server 2008 R2 - Windows Server 2012

PC to Client Communication Interface

TCP/IP	Client (Remote) / Server (hosting PC) Architecture via Ethernet
Link&Share	100% of parameter are accessible through telnet protocol

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