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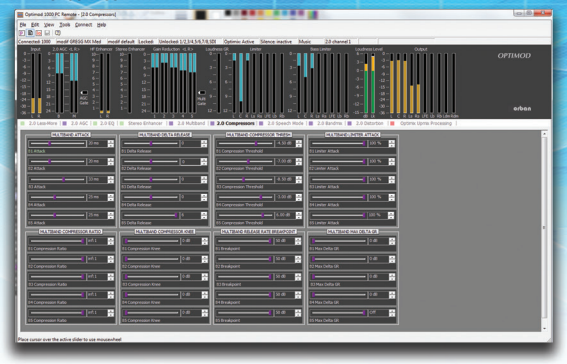
audio processing

OPTIMOD-PCn



Advanced Optimod audio processing runs natively on Intel x86/Windows platform

overview

Orban's Model 1600 OPTIMOD-PCn is audio processing software that is available both as a software-only product for Orban-approved Windows® 7 (and higher) computers and pre-installed on a host Windows computer. The host computer can be configured at the factory to run advanced audio processing software (called OPTIMOD-PCn) and MPEG-4 AAC/HE-AACv2/MP3 streaming audio codecs (from Orban's partner Modulation Index) software natively on its Intel processor. Depending on its ordered configuration, the 1600 can run multiples instances of monophonic or stereo processing, and these can be mixed and matched as required. Orban's exclusive Optimix® stereo ➞ 5.0 surround upmixer can be applied to stereo source material to create "instant surround" with excellent downmix compatibility. The 1600 is equally suited for mastering, netcasts and digital radio broadcasting.

While OPTIMOD-PCn can be used for video applications, video applications in SDI facilities require de-embedding and re-embedding audio. In all applications, you must apply a video delay that matches the delay of the audio processed through OPTIMOD-PCn, which may be a much as 1.6 seconds. OPTIMOD-PCn ships with a full complement of sound-for-picture presets, and this manual includes instructions for using the OPTIMOD-PCn in video applications.

From the ground up, OPTIMOD-PCn 1600 was designed for professionals. It offers broadcast-quality digital signal processing that is suitable for both live streaming and on-demand programming. OPTIMOD-PCn uses the power of Intel's x86 architecture provide a consistent, well-produced sound to the consumer by performing phase skew correction, stereo enhancement, automatic gain control (AGC), equalization, multiband gain control, stereo-to-surround upmixing, peak-level control, and automatic loudness control.

OPTIMOD-PCn's setup, metering, and subjective loudness control incorporate contemporary concepts of "target loudness" based on the ITU-R BS.1770 loudness measurement algorithm and on Orban's third-generation refinements to the CBS (Jones & Torick) loudness controller and loudness metering technology.

OPTIMOD-PCn can increase the density and loudness of the program material

general features

Optimod-quality digital audio processing	Running natively on Intel x86 processors, pre-processes audio for consistency and loudness before it is transmitted or recorded. Optimod-PCn offers **new features never before available in Optimods,** as well as a **significantly improved high frequency enhancer and stereo enhancer**.
Applications	Include netcasting, DAB and other dedicated digital radio services, FMExtra™ and other digital subcarriers, sound-for-picture, mastering, audio production, and many others.
Highpass filter	For specialized purposes like speech processing, a **highpass filter** switchable from 30 Hz to 200 Hz is available.
"Target loudness" concepts	Incorporates modern **"target loudness" concepts** (including those specified in **EBU R128** and **ATSC A/85) using the ITU-R BS.1770 loudness model**. Allows you to easily **set and verify the target loudness of the output**.
Windows Service	The Optimod-PCn audio processor runs as a **Windows Service** on the host computer. A responsive, smooth, easy-to-use **graphic control application** runs on the host or remote PCs and can control any number of OPTIMOD-PCn instances, either locally (via a local host TCP/IP connection) or in other 1600s on your network via **TCP/IP** addressing. The Control application allows you complete flexibility to create **your own custom presets,** to save as many as you want to your local hard drive, and to recall them at will.
AES3 or analog hardware I/O	In hardware bundles, optional sound cards are available for customers needing **AES3 or analog hardware I/O**.
Precisely controls peak levels	**Precisely controls peak levels** to prevent overmodulation or codec overload. While **primarily oriented toward "flat" media**, OPTIMOD-PCn can also provide **preemphasis limiting** for the two standard preemphasis curves of 50µs and 75µs. This allows it to protect preemphasized **satellite uplinks and similar channels** where protection limiting or light processing is required. It can also be used to process analog television FM aural carriers in television applications because these are usually processed lightly compared to FM radio.
Controls audio bandwidth	**Controls audio bandwidth** as necessary to accommodate the transmitted sample frequency, obviating the need for extra, overshooting anti-aliasing filters in downstream equipment. OPTIMOD-PCn's high frequency bandwidth can be switched instantly (typically in 1 kHz increments) between 10.0 kHz and 20 kHz. 20 kHz is used for highest-quality systems. 15 kHz codec bandwidth may **help low bitrate lossy codecs sound better than they do when fed full 20 kHz bandwidth audio.** 15 kHz is well matched to the codec used the iBiquity® HD-AM system.
DC removal filter	A **DC removal filter** with a 0.1 Hz –3 dB low frequency cutoff removes DC offset from source material **without introducing overshoot and tilt into low-frequency waveforms.**
Many standard presets	OPTIMOD-PCn ships with over **many standard presets**, which correspond to different programming formats. There are also special-purpose, no-compromise presets for **mastering, studio AGC, pure peak limiting, and low bitrate encoding** applications.
Smoothly activated and defeated on-air via a delay-matched pass-through mode	Audio processing can be **smoothly activated and defeated on-air via a delay-matched pass-through mode**, allowing programs that can benefit from full dynamic range to pass through OPTIMOD-PCn without dynamics compression except **for safety limiting using MX or non-MX limiter modes**.
Bypass Test Mode	A **Bypass Test Mode** can be invoked locally, by remote control (from either the 1600's GPI port or PC Remote application), or by automation to permit broadcast system **test and alignment** or "proof of performance" tests.
Line-up tone generator	OPTIMOD-PCn contains a built-in **line-up tone generator**, facilitating quick and accurate level setting in any system.
Silence alarm	**Silence alarm** and **digital audio fault tally outputs** are available.
Dongle-based copy protection	**Dongle-based copy protection** allows the software to be easily moved from one computer to another without elaborate re-authorization procedures.