OPTIMOD
6300

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TECHNICAL DETAILS (continued from page 3)

Voltage	85–264 VAC, auto-selected, 50–60 Hz, 30 VA
Dimensions (W x H x D)	19" x 1.75" (1U) x 14.25" / 48.3 cm x 4.5 cm (1U) x 36.2 cm
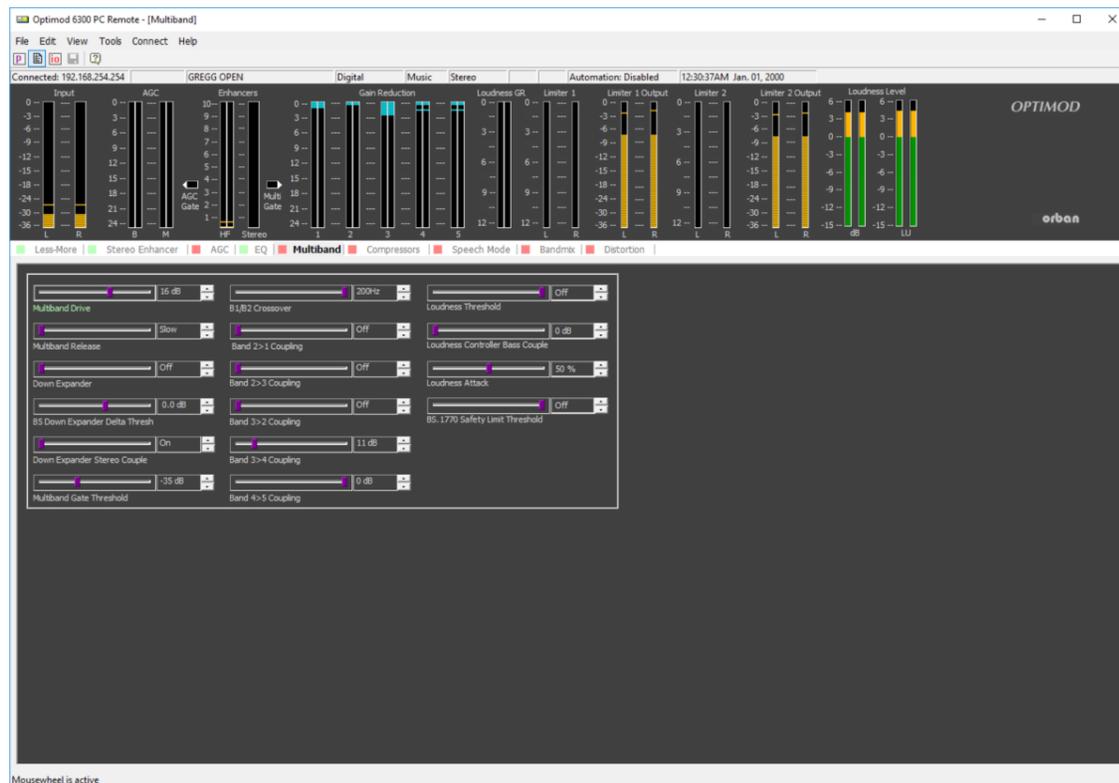
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The **OPTIMOD 6300** is a high-quality, multipurpose stereo audio processor for digital radio, digital television, netcasts, STL protection, satellite uplink protection, and digital mastering. Thanks to versatile signal routing, the 6300 can also serve as a studio AGC with an all-digital signal path, and simultaneously as a talent headphone processor.

Key Features

Quick Setup provides a guided, systematic procedure for setting up the 6300. It should be adequate for most users without special or esoteric requirements.

Easy **LESS-MORE** adjustment of the dynamics processing lets anyone get excellent results, while processing experts can fine-tune to their exact preferences with Full Modify or Advanced Control. (Advanced control is available only from PC Remote software.)

Factory Presets: Each OPTIMOD comes with a variety of factory presets which you can use as basis to create your own signature sound. Orban is happy to help you find the perfect setup for your station.

Two Processing Structures: The OPTIMOD 6300 offers two processing structures which are five-band for a spectrally consistent sound with good loudness control, and two-band for a transparent sound that preserves the frequency balance of the original program material while also effectively controlling subjective loudness.

PreCode™ technology (in five-band structure): This feature allows the OPTIMOD to manipulate several aspects of the audio to minimize artifacts caused by low bitrate codecs, ensuring consistent loudness and texture from one source to the next. PreCode™ includes special audio band detection algorithms that are energy and spectrum aware. This can improve codec performance on some codecs by reducing audio processing induced codec artifacts, even with program material that has been preprocessed by other processing than OPTIMOD. There are several factory presets tuned specifically for low bitrate codecs.

Speech and Music Detection: The OPTIMOD automatically detects if voice or music is being processed and allows you to set up the processing indivually for both.

"True Peak" Control with an accuracy of better than 0.5 dB. For typical program material, accuracy is 0.2 dB. There are two peak limiters, each dedicated to one digital output. They can have different values for the DIALNORM/Loudness Target. For example, you can set Limiter #1's DIALNORM value to –24 LUFS for on-air transmission and Limiter #2's DIALNORM value to –16 LUFS for streaming.

ITU-R BS.1770-4 Loudness Control facilitates compliance with modern target loudness recommendations like EBU R 128 and ATSC A/85 and allows users to obey any associated government regulations.

CBS Loudness Controller™: The CBS algorithm has proven its effectiveness by processing millions of hours of on-air programming since the early 1980s. It smoothly limits subjectively perceived loudness to a broadcaster-set threshold, preventing audience irritation. The controller measures subjective loudness (as perceived by an average listener) and then closes a feedback loop to limit loudness to a preset level. It effectively controls loud commercials, which are the primary irritant in sound-for-picture applications. Third generation improvements reduce annoyance more than simple loudness control alone, doing so without audible gain pumping.

The **Sync input** accepts "house sync" on AES11id or wordclock format. A setup menu selection determines whether the 6300's output will be synchronized to wordclock, AES11, the 6300's internal clock, or if the signal is synchronized to its AES3 audio input.

Dolby Digital® Dialnorm Metadata: OPTIMOD 6300 supports Dolby Digital® Dialnorm metadata, which simplifies setting up the 6300 to drive Dolby Digital® channels. If you tell the 6300 what value of Dolby Digital® Dialnorm metadata you are transmitting to your audience, the 6300 will prevent your transmission from being too loud or quiet compared to other correctly set up Dolby Digital® transmissions.

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Bypass Test Mode and Tone Generator: A Bypass Test Mode can be invoked locally, by remote control or by automation to perform a broadcast system test or to compare easily original and processed sound. A built-in line-up tone generator facilitates quick and accurate level setting.

Failsafe switching detects loss of audio on the primary input, which you can assign to be the analog or digital input. If audio is lost on the primary input, the 6300 can switch automatically to the secondary input.

SNMP Support: The SNMP (Simple Network Management Protocol) features allow you to monitor your Optimod's status and to send alarm notifications via your Optimod's Ethernet connection to your network.

Remote Control or front panel operation: You can operate and configure the 6300 comfortably via the supplied Windows PC Software using your local network or the Internet. Alternatively all functionalities are also available via the front panel with its display.

OPTIMOD 6300 as Talent processor: Use the stereo enhancement, equalization, and multiband processing without peak limiting to drive talent headphones. Delay is less than 5 milliseconds from input to output. This is particularly useful in HD Radio facilities, where off-air headphone monitoring is impossible due to delay.

OPTIMOD 6300 as studio AGC: Use the 6300's AGC with peak limiting to substitute for the AGC in an OPTIMOD at the transmitter and to provide protection limiting for the STL. The AGC is turned off in the transmitter-side OPTIMOD. The 6300's two independent stereo look-ahead limiters can be switched to operate either "flat" or on a 50 μs or 75 μs pre-emphasis curve to protect a pre-emphasized path like a typical analog microwave STL.
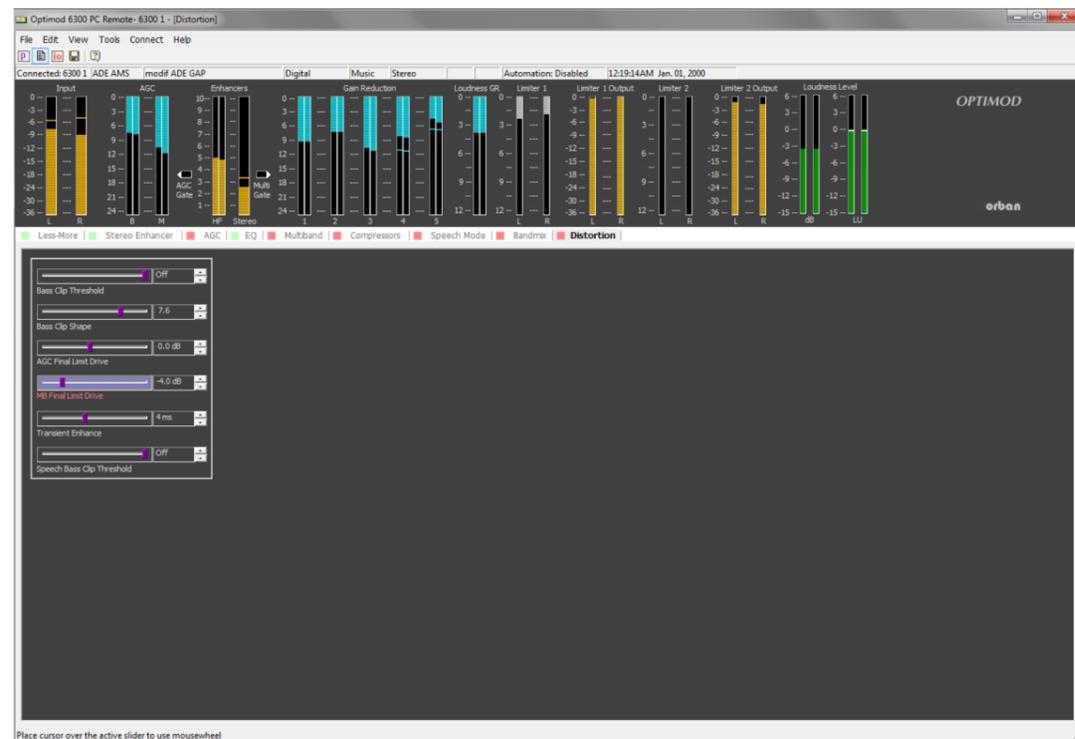
TECHNICAL DETAILS

Total System Distortion (de-emphasized, 100% modulation)	<0.01% THD, 20 Hz–1 kHz, rising to <0.05% at 15 kHz. <0.02% SMPTE IM Distortion
Frequency Response	Follows standard 50μs or 75μs pre-emphasis curve ±0.10 dB, 20 Hz–20 kHz. Analog left/right output and digital output can be user-configured for flat or pre-emphasized output
Sample Rate	64 kHz to 512 kHz, depending on processing being performed
Total System Separation	> 70 dB, 20 Hz - 20 kHz; 90 dB typical
Peak Overshoot at HD Output	0.5 dB True Peak maximum; 0.2 dBTP typical
Minimum Processing Delay	6 ms to 20 ms, processing structure dependent
Low-Latency Monitor Output Delay	4 ms
Analog Audio Inputs/Outputs	Stereo on XLR connectors Nominal Input level: –4.0 to +13.0 dBu (VU) or -2 dBu to +20 dBu (PPM) Output level. –6 dBu to +24 dBu peak
Digital AES Audio Inputs/Outputs	1 x Stereo input on XLR, 24 bit resolution Input Reference Level: Variable within the range of –30 dBFS to –7 dBFS (VU) or -23 dBFS to 0dBFS (PPM) 2 x Stereo outputs on XLR Output Level (100% peak modulation): –20.0 to 0.0 dBFS software controlled
Sampling Rate	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, and 96 kHz
Sync Input on BNC Connector	1x word clock or AES11id (75 Ohm) sync, selectable in software
Windows PC Software	Included in delivery; requires Microsoft Windows® 7 OS or higher; PC connection via TCP/IP protocol via direct cable connect, modem or Ethernet interface (RJ45) or serial RS232 interface
GPI Interface	8 x user-programmable inputs, floating on DB-25 male connector
Tally Outputs	2 x NPN open-collector