



# OPTIMOD 5700i



## TECHNICAL DETAILS (continued from page 3)

<b>Baseband Spectral Protection</b>	pilot protection > 60 dB re 9% pilot injection, $\pm 250$ Hz; subcarrier protection > 70 dB; RDS protection > 50 dB re 4% RDS injection. All specs apply with up to 2 dB composite processing drive
<b>Non-Digitized SCA Inputs</b>	2 x non-digitized analog on BNC connectors; summed into the analog composite outputs SCA 2 input can be configured to supply a 19 kHz pilot reference
<b>Windows PC Software</b>	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
<b>GPI Interface</b>	8 x user-programmable inputs, floating on DB-25 male connector
<b>Tally Outputs</b>	2 x NPN open-collector
<b>Voltage</b>	85–264 VAC, auto-selected, 50–60 Hz, 30 VA
<b>Dimensions (W x H x D)</b>	19" x 1.75" (1U) x 14.25" / 48.3 cm x 4.5 cm (1U) x 36.2 cm

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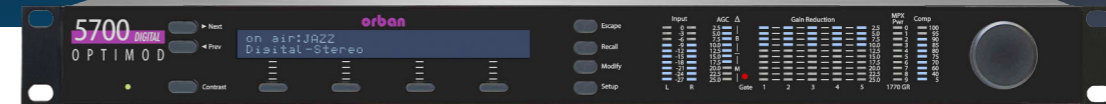
Contact for Africa, Australia, Asia,  
Europe & Middle East:

Orban Europe GmbH  
Monreposstr. 55 - 71634 Ludwigsburg - Germany  
sales@orban-europe.com - Phone: +49 7141 2266 0  
www.orban.com

Contact for USA, Canada, South & Latin America:

Orban Labs, Inc.  
7209 Browning Road - Pennsauken, NJ 08109 - USA  
sales@orban.com - Phone: +1 856 719 9900  
www.orban.com

# OPTIMOD 5700i



The OPTIMOD 5700i offers the proven OPTIMOD sound in a compact, cool-running 1U rack at an affordable price. It provides stereo enhancement, equalization, AGC, multiband compression, low-IM peak limiting, stereo encoding, and composite limiting - everything that you need to compete in your market. More than 20 excellent sounding, format-specific factory presets get you started. Although the factory presets are fully competent “out of the box”, you can customize them with easy one-knob control or with more than 60 advanced controls. The 5700i provides two optimized processing chains for FM analog and HD/digital radio transmission.

## Key Features

**Quick Setup** provides a guided, systematic procedure for setting up the 5700i. It should be adequate for most users.

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

**Four Processing Structures:** The 5700i features four Processing Structures which are Optimum Five-Band (or “Multiband”; 20 ms delay) for a consistent, “processed” sound, free from undesirable side effects, Ultra-Low-Latency Five-Band (5 ms delay) for environments where talents monitor live off-air and they object to the delay of Optimum Five-Band, Low-Latency Five-Band (12 ms delay), and Two-Band for a transparent sound that preserves the frequency balance of the original program material.

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

**“True Peak” Control** for the digital radio processing with an accuracy of better than 0.5 dB. For typical program material, accuracy is 0.2 dB.

**ITU BS-412 Multiplex Power Control:** A defeatable, program-adaptive multiplex power limiter can unobtrusively control the multiplex power according to ITU-R BS412 standards.

**ITU-R BS.1770-3+ Loudness Control** is available for the digital and analog radio processing chains in countries

enforcing BS.1770 loudness limits on either one or both analog FM or digital radio broadcast.

**Composite Limiter/Clipper:** A patented “Half-Cosine Interpolation” composite limiter providing excellent spectral protection of the pilot tone and SCAs (including RDS). If you prefer the sound of conventional composite clipping, we also offer a defeatable composite clipper with spectral protection for the pilot tone and subcarriers. The composite clipper drives the composite limiter, which serves as an overshoot compensator for the composite clipper when it is active.

**SSB Stereo Encoder Operation:** Allows its stereo encoder’s stereo subchannel modulator to operate in an experimental compatible single sideband/vestigial sideband mode. In SSB mode, the subchannel modulator acts as a pure SSB generator for L–R material in the frequency range of 150 Hz to 17 kHz and as a vestigial sideband generator below 150 Hz.

**Low-Delay DJ Monitor Output:** The 5700i offers a low-delay monitor output which takes the audio from multiband compressor output and has an approximate delay of 4 ms. This allows the talent/DJ to comfortably monitor the processed audio off-air with headphones.

**10 MHz Reference Input:** With the 10 MHz Reference Input it is possible to lock the internal DSP clock, the stereo pilot tone frequency and digital composite output sample rate to a 10 MHz reference signal (like GPS). This feature facilitates the operation within single-frequency-networks (SFN) and near-single-frequency-networks (N-SFN).

**RDS:** Built-in full-featured RDS/RBDS generator that supports static and dynamic RDS values.



**Ratings Encoder Loop-Through:** A ratings encoder can be placed between AGC and the FM-HD/digital radio split (allowing one ratings encoder to be used for FM and digital radio), or between the FM analog limiter output and the stereo encoder (to maximize the drive level to the ratings encoder and to avoid passing the watermark through FM peak limiting).

**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.

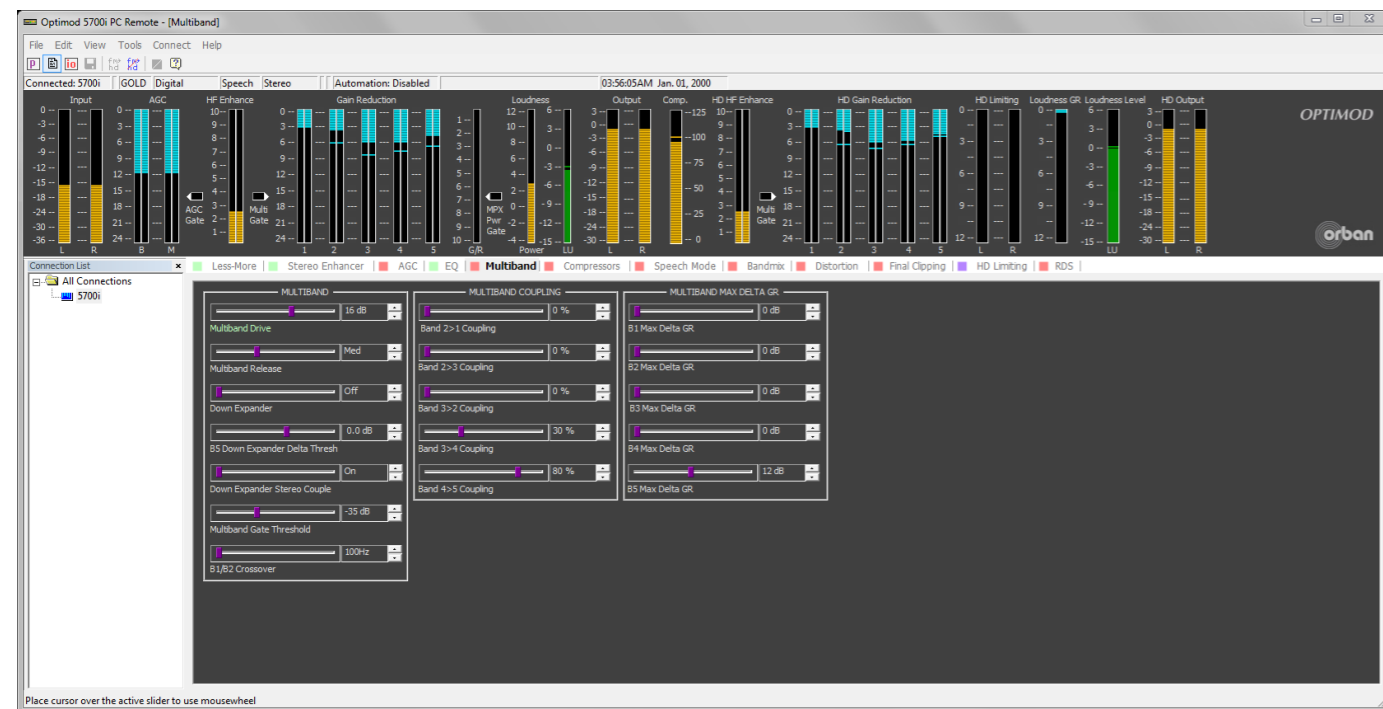
**Defeatable Analog FM Processing Delay:** A configurable delay can be added to the FM path to allow the delays of the analog and digital paths in the HD Radio/DAB+ system to be matched at the receiver output. This is e.g. important in car radios with automatic switch-over.

**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 5700i can switch automatically to the secondary input.

**SNMP Support:** The SNMP (Simple Network Management Protocol) feature allows 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 5700i 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.

**Upgradeable:** Via a paid upgrade kit, the 5700i can be upgraded to full OPTIMOD 8600Si functionality.



**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–15 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**

> 50 dB, 20 Hz - 15 kHz; 60 dB typical

**Peak Overshoot at HD Output**

0.5 dB True Peak maximum; 0.2 dBTP typical

**Defeatable Analog FM Processing delay**

0.27 to 16.384 seconds

**Minimum Processing Delay**

3.7 ms to 22 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, can be individually set to emit the analog FM processed signal, the digital radio processed signal or the monitor signal  
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

**Wordclock Sync Input on BNC Connector**

1x word clock or 10 MHz clock, automatically selected  
DSP master clock can be phase-locked to these signals, which in turn phase-locks the 19 kHz pilot tone frequency, facilitating single-frequency network operation. The digital output sample frequency can also be locked to these signals.

**Composite Baseband Outputs**

2 x analog on female BNC connectors providing –12 dBu (0.55 Vp-p) to +16.0 dBu (13.82Vp-p) levels for 0.1 dB adjustment resolution

**Stereo Separation**

At 100% modulation = 3.5Vp-p, > 60 dB, 30 Hz - 15 kHz.  
At 100% modulation = 1.0 - 8.0 Vp-p, > 55 dB, 30 Hz - 15 kHz