

Omnia Multicast

Version 3.5.2 Software Update 11/2006

Installation Instructions and Manual Addendum

Software Update Instructions

***** Important Notes! Please Read! *****

?? Omnia-3 Remote Control Version 3.5.2 or higher must be used with the software enclosed in this update kit. Previous versions are now incompatible and will not operate properly. The latest version may always be freely downloaded from:

<http://www.omniaaudio.com/support/updates.htm>

If you have questions or find that you require assistance with this upgrade, you may call Customer Support at 1.216.241.7225. Please have the serial number of your unit handy if you need to call us. The serial number can be found on a small barcode sticker on the rear panel that looks like this: 430xyyyy.

Software Update Procedure

- 1) Remove the Omnia-3 from service and disconnect power from the unit.
- 2) Remove the old PCMCIA software card that from the **top** PCMCIA slot on the rear panel by pressing the black release button to the right of the card to release the card and then remove it from the slot and set it aside.
- 3) Carefully insert the new memory card into the **top** slot of the Omnia-3's rear panel with the large Omnia logo facing up and the version number sticker facing down. Make certain that the card is properly aligned with the socket. Note that inserting the memory card upside down or into the bottom slot (which is for the optional modem only) can irreparably damage the card and/or the socket.
- 4) Press the card gently but firmly into the top slot until it is fully seated. Do NOT apply excessive force! The card should seat easily into the socket with only slight resistance. When fully seated, the black release button should pop out about 1/2" [12.70 mm].
- 5) Connect the AC power cord, and turn on the power switch. An error message may appear that says "Cannot Load System. Older Version." This is normal. Simply click the jog wheel once to clear it and the Main Menu should appear.

The update procedure is completed. You may now re-install the unit to service.

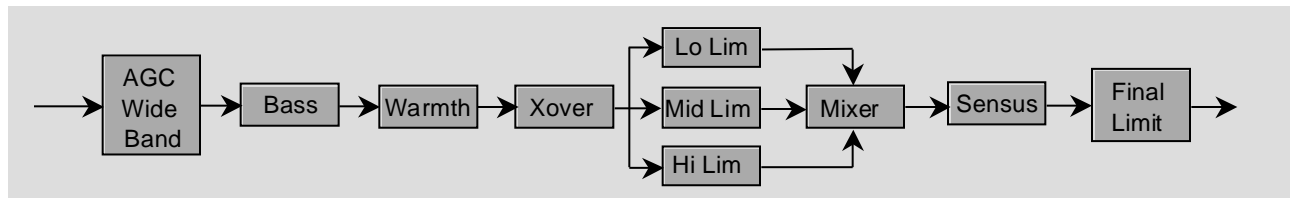
You will now need to return the old card you just removed to Telos / Omnia. Once we have received the card, a full credit will be issued.

Manual Addendum

The following block diagram presents the order of the processing architecture. For the purposes of this document only the Sensus and Final Limit blocks will be discussed.

For information on the other processing blocks, please refer to the manual that shipped with your unit or the latest version of the manual, available for download in .pdf format at:

<http://www.omniaaudio.com/support/manuals.htm>



Sensus Block

This is what sets apart Omnia audio processors designed for codec integration from off-the-shelf multiband compressors. The Sensus function is a new concept to audio processing. The basis for this algorithm is to understand the criteria that will normally upset an audio codec, and modify the signal, in advance, so that artifacts are not created, or at least minimized. The magic, so to speak, is embedded in a method that detects various conditions of the incoming signal and will then, on the fly, modify the topology to generate the needed provisioning for the audio. In this case, the SENSUS function will study the sound field, frequency content, and target bitrate. Then, it employs spectral, sound field management, and acoustical masking to reduce coding artifacts. The result is audio that contains added presence and intelligibility, especially at lower bitrates.

The Sensus Algorithm is designed to recognize various conditions in audio content and modify the processing topology. In this embodiment, the algorithm is used to determine the amount of spectrum energy above a set frequency. This is not level based, but frequency based. As frequency increases a control signal reduces level above the specified frequency breakpoint, as set by the Sensus filter. Increasing frequency reduces spectra by a like amount.

Under normal operating conditions, attenuation is occurring during mono content that contains HF spectra. Stereo audio will mask the attenuated mono signal and “brighten” the audio. This restricts bandwidth during speech segments. By eliminating the upper harmonics from voice, codec induced artifacts are reduced when lower bitrates are used.

The control level is adjustable, as well as a method to link stereo. The latter can be used as an additional option for lower bitrates, or whenever aggressive codec management is required.

There are three controls in this block:

Sensus Frequency: This sets the range where the SENSUS function will center its work. A setting of 5kHz will center the SENSUS system to focus on 5kHz and greater. Use a lower frequency for low bitrates if artifacts are perceived. Adjustment Frequencies are between 1kHz and 12kHz.

Sensus Level: The amount of change to be added, is applied here. Increasing the setting adds more SENSUS control.

Stereo Link: Under most operating modes, this can be set to Low or OFF. The link control allows dynamic coupling of the stereo to mono ratio. When set to OFF, the SENSUS function will only effect mono material, or signals that are common to the Left/Right channels under stereo conditions. Increasing the link adjustment may offer assistance with low bitrates and an inefficient codec.

Final Limit Block

This is the final limiter where absolute peak control is accomplished.

There are three controls here:

Final Limit: With this you can turn the final limiter ON or OFF. This should normally be left ON unless the equipment following the Omnia.Multicast has a non-defeatable limiter or otherwise requires non-limited audio.

Drive: This controls the amount of final limiting. The gain-reduction of the final limiter can be monitored on the Process Bargraph screen.

LPF Frequency: This is a key control for matching the audio bandwidth of the processed audio to the bitrate of the following codec. Proper bandwidth will ensure minimal side effects and aliasing distortion products from the codec process. Settings are: 4, 6, 8, 10, 13, 16 and 22 kHz. These are the frequencies at which the filter reaches full (at least 100dB) attenuation. A frequency at or below half the sampling frequency of the encoder should be selected.

An important tool that aids a processor with codec provisioning is low pass filtering. Omnia.Multicast offers adjustable output filters that should be set based upon the codec. The following chart recommends low pass filter settings that support the AAC-SBR, MP3, and Windows Media (WMA) codec applications. These are suggestions, and they should be thought of as a starting point.

AAC/SBR	Output LPF	MP3	Output LPF	WMA	Output LPF
24kbps	8kHz	24kbps	6kHz	24kbps	5kHz - 6kHz
32kbps	10kHz	32kbps	6kHz	32kbps	8kHz
48kbps	13kHz	48kbps	8kHz – 10kHz	48kbps	10kHz – 13kHz
64kbps	16kHz	64kbps	10kHz – 16kHz	64kbps	13kHz – 16kHz