# DynasoundPRO®



## DS30002, DS3008, and DS8000 Networked Soundmasking, Paging, and Music Processors with Privacy Manager Software

**Version 9.00**

**Print Date: 05/21/2014**

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## Important Safety Information

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings.
8. Install in accordance with manufacturer's instructions.
9. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that create heat.
10. Only use the attachments/accessories as specified by the manufacturer.
11. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord has been damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

CobraNet is the registered trademark of Cirrus Logic.

Windows XP, Windows Vista and Windows 7 are registered trademarks of Microsoft.

# Soundmasking Systems by Dynasound

Congratulations on your selection of Dynasound equipment. This equipment represents the latest advances in soundmasking technology. The DS3002 and DS3008 processors can be used for traditional centralized soundmasking systems or for state-of-the-art networked, addressable systems. The DS8000 power over Ethernet (PoE) speaker controllers introduce an unprecedented level of control to the soundmasking industry.

## Centralized Systems

Centralized soundmasking systems consist of a masking generator with equalizer, a mixer for paging inputs, and an audio power amplifier hard wired to predetermined zones of speakers. The DS3002 and DS3008 processors each incorporate four separate soundmasking generators, each having 1/3 octave band equalization. Balanced audio inputs and outputs and multi-channel matrix mixers make the DS3002 / DS3008 processors an ideal choice for complex centralized masking and paging systems.

## Addressable Systems

An addressable soundmasking paging and music system incorporates very little centralized equipment. Instead of a central rack of generators, mixers and amplifiers, the system is comprised of speakers which are networked together. The mark of a well-designed system is that every speaker can be individually controlled. A poorly designed network system often cluster groups of speakers on a single audio output.

## Hybrid Systems

Dynasound's soundmasking processors provide balanced analog audio outputs and CobraNet™ digital network audio outputs. This means they can be the central control and the paging and music inputs location for systems using both standard 70 volt lines and networked speakers.

# Dynasound Network Soundmasking: How It Works....

Dynasound networked systems feature a minimum of parts and pieces, yet provide the most flexible and adjustable soundmasking system available. The entire system is comprised of varying quantities of four easy to understand components:

1. DS3002 or DS3008 soundmasking, paging and music processor
2. DS8000 PoE speaker controllers
3. DS1356 or DS1388 speakers
4. PoE network switches

CobraNet™ audio networking capability provides 8 channels of networked digital audio between the D3002/DS3008 and DS8000s. The DS3002/DS3008 is used to input standard audio signals, such as paging or music into the audio network. Additionally, in the factory configuration, the DS3002/DS3008 is used to broadcast soundmasking signals though network audio channels 7 and 8.

The DS8000 speaker controllers receive power and network audio though the Cat-5 network cable. Each DS8000 is capable of receiving eight audio channels. The DS8000 incorporates full DSP (digital signal processing) and can route any mix of the eight audio channels to any individual speaker or group of speakers. In addition each speaker has individual access to the four internal masking generators inside each DS8000.

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# Dynasound Networked Soundmasking Overview
## Main Network System Components

Dynasound DS1356 speakers wire directly to DS8000 networked speaker controllers using standard two conductor audio cable. Dynasound's DS1388 speakers may also be used with network systems. For sample diagram of a networked system, see page 8.
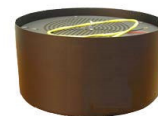
Dynasound DS8000 speaker controllers are PoE, 8 channel network receivers including full DSP and internal soundmasking generators. They are connected using standard CAT-5 connections.

Industry standard PoE switches and cables are used. Expensive managed switches are not required. Switches used for data flow only do not require PoE and may be standard network switches.

## Soundmasking, Paging, Music Processor

Dynasound DS3002/DS3008 soundmasking processors are used to route analog signals such as paging and background music into or out of the digital audio network. Network systems can use broadcast soundmasking from the DS3002/DS3008, or localized masking generated internally in the DS8000s, or both.
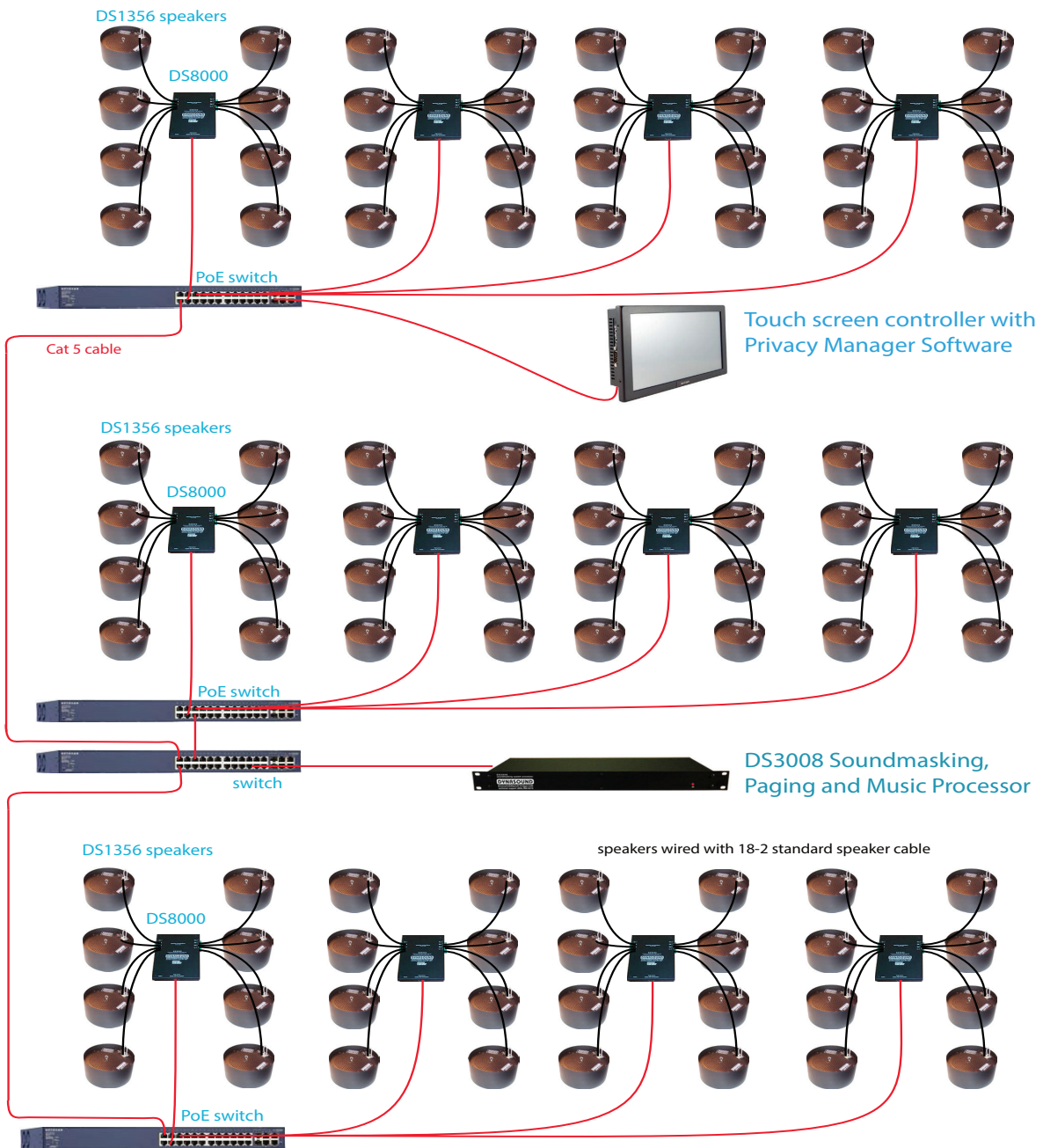
## Automation and Control

A touchscreen on a PC can be used to control and automate system functions and schedules. Privacy Manager software provides the ability to easily adjust sound levels system-wide, per zone or per speaker. Functions include the ability to assign multiple soundmasking schedules, system profiles, and even to automatically run system profiles on a timed basis.

The Dynasound DS1404 four channel programmable level controller can be used to modify the level of analog masking , paging or music signals, depending on the time of day and day of week.

DS1356 speakers

DS8000

PoE switch

Touch screen controller with
Privacy Manager Software

Cat 5 cable

DS1356 speakers

DS8000

PoE switch

switch

DS3008 Soundmasking,
Paging and Music Processor

DS1356 speakers

speakers wired with 18-2 standard speaker cable

DS8000

PoE switch

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## Example Speaker Identification - Networked Systems

A drawing showing DS8000 and DS1356 speaker locations is required to make adjustments to individual speakers or Control Zones. This example represents four DS8000s labeled 1.1, 1.2, 2.1 and 2.2. The typical naming convention for the system is to label each DS8000 with the floor number and sequential ID. In this example the DS8000s are labeled in two groups even though on the same floor.

While there is flexibility in the naming convention, the goal is to make it easy to reference a particular DS8000 and the speakers attached to it.
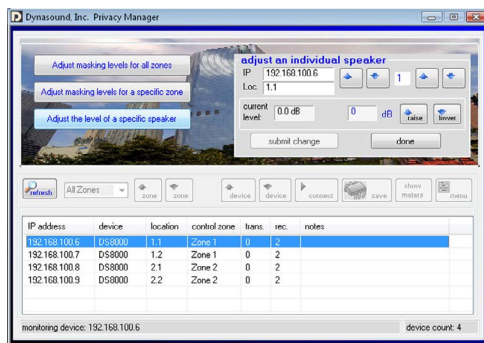


These screen above shows the quick utility to adjust the volume of speaker 1 connected to DS8000 number 1.1. On the drawing that speaker is labeled 1.1.1.
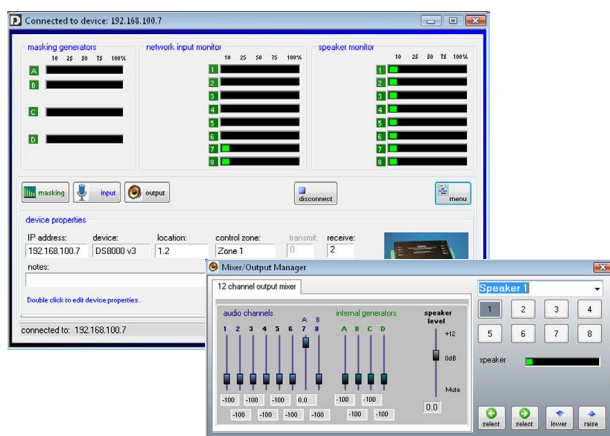


These screens show connection to the DS8000 having an IP address 192.168.100.7 and location 1.2. The Output Manager screen indicates that speaker 1 is selected. The Output Manager screen also illustrates the level of control available. Note that individual speakers have access to eight network audio channels and four independent masking generators.
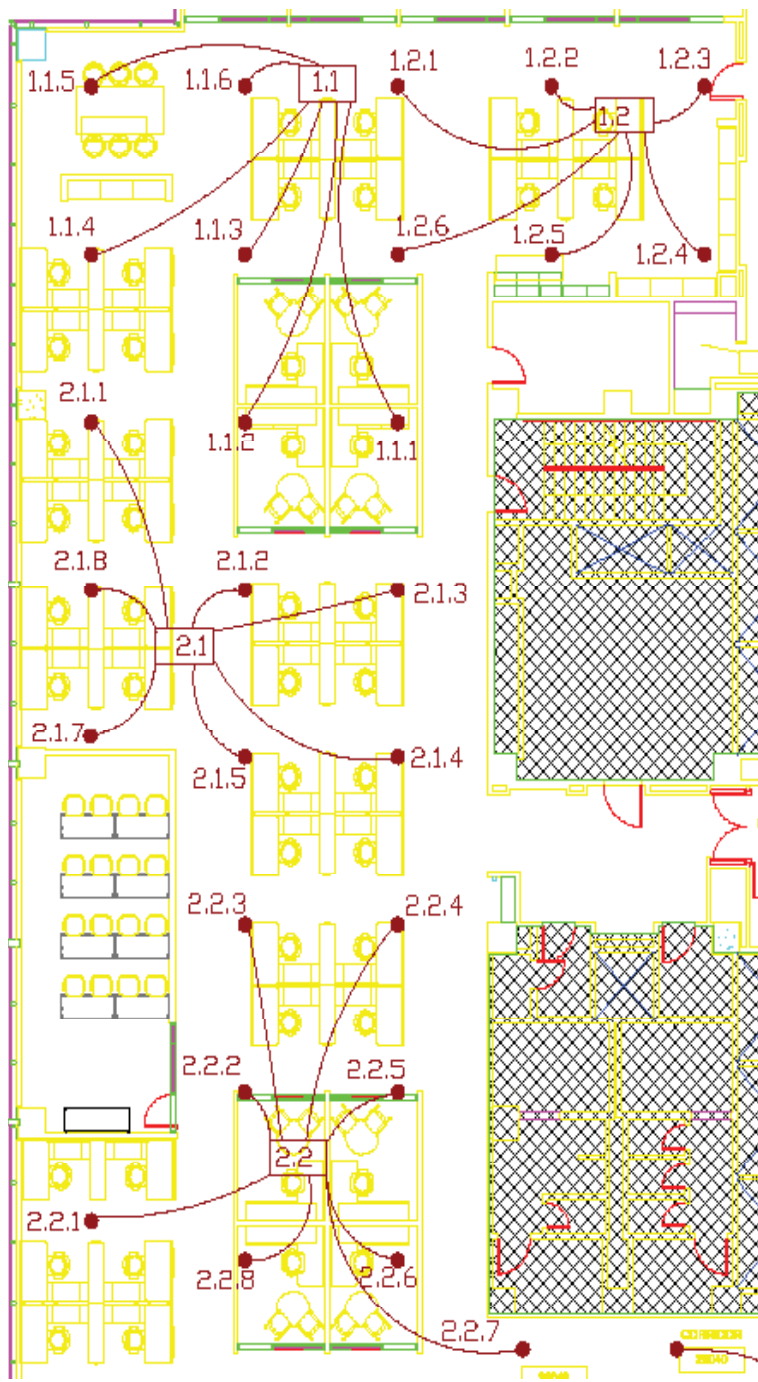
## Install Privacy Manager

If Privacy Manager is already installed and configured, you can skip this section and proceed to the next page. If not, proceed as follows:

Insert the USB drive provided with the DS3002/DS3008/DS8000. Open the drive and run the setup program provided. You can also download the latest version of Privacy Manager from www.soundmasking.com/support. html.

### Configuring Privacy Manager for Your Soundmasking Network
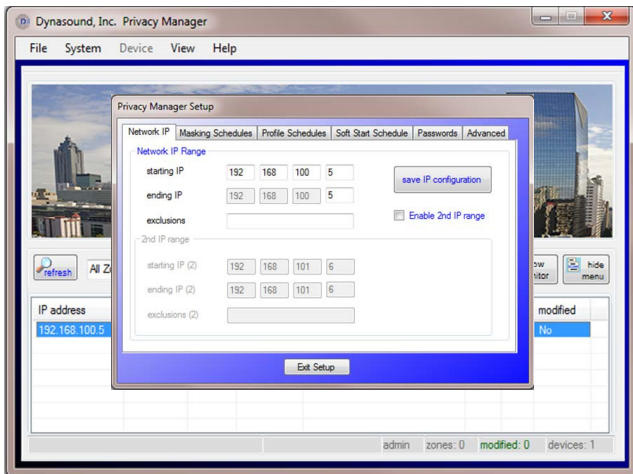


The default IP search range is set to the default IP address of a DS3002 or DS3008 (192.168.100.5). If additional devices are being used, the range of IP addresses in your system must be entered into the Network Setup screen.

If there are unused IP addresses between the starting and ending numbers, the unused numbers should be entered into the exclusion field so that, during operation, Privacy Manager software is not delayed attempting to locate non-existing devices. For exception IP addresses, enter only the last segment of the IP address. Complex exceptions may be specified similar to page numbers in a word processor. For example you could exclude devices 5,8,10-15,20 which would exclude IPs ending in 5,8,10,11,12,13,14,15, and 20.

### Connecting Your Computer to the Soundmasking Network

Communications between the Windows-based PC and the DS3002/3008 and networked DS8000s are done via a 100 base, T-switched network connection. You must set your PC Network Interface Card to a fixed IP as shown below. The DS3002/DS3008 default factory IP address 192.168.100.5. Default IP addresses for DS8000s are 192.168.100.6 through 192.168.100.200. You should set your computers network IP to a fixed IP, out of the range of other network devices, such as 192.168.100.240.
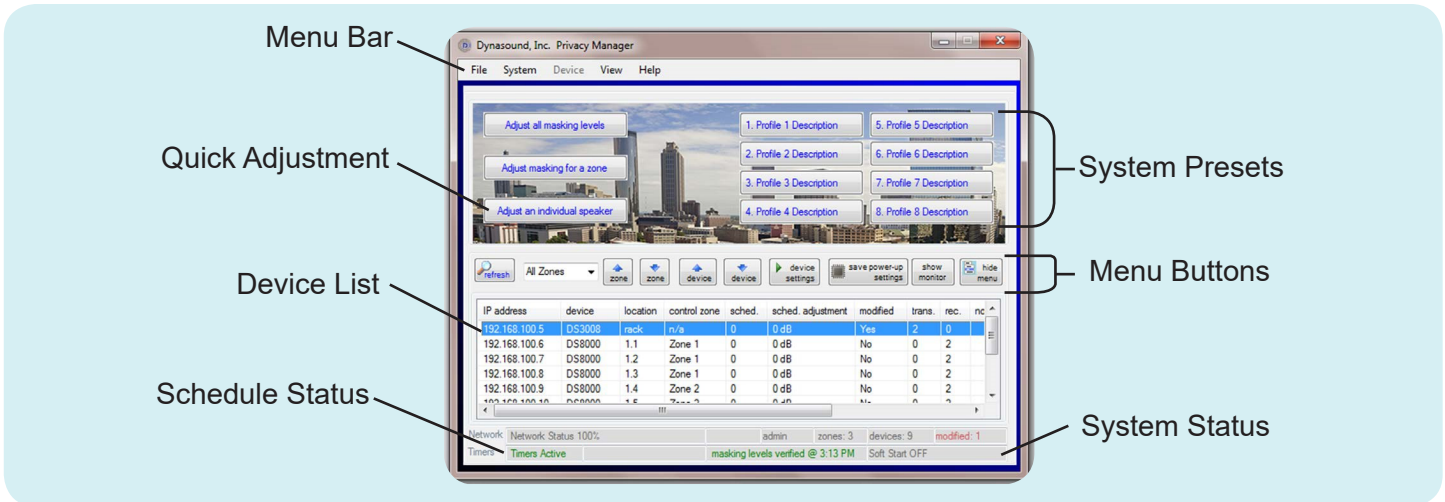
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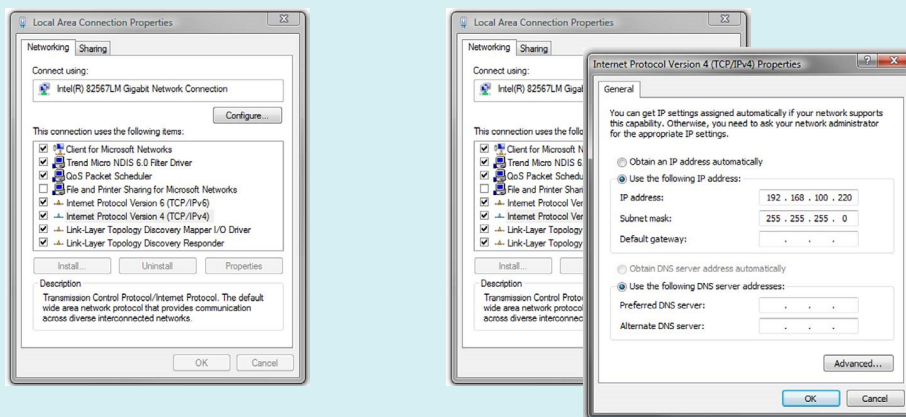
# Use Privacy Manager

Dynasound's Privacy Manager software is used to control DS3002, DS3008, and DS8000 series soundmasking products. Privacy Manager is Windows-based and runs on XP, Vista, Windows7, and Windows 8 operating systems.

## Home Screen

The home screen provides access to system management features and lists the individual network devices.

Menu Bar

Quick Adjustment

Device List

Schedule Status

System Presets

Menu Buttons

System Status

## Device Screens

All network devices include four individual soundmasking generators and independant input and output processing. Network devices include DS3002, DS3008, and DS8000.

### Soundmasking
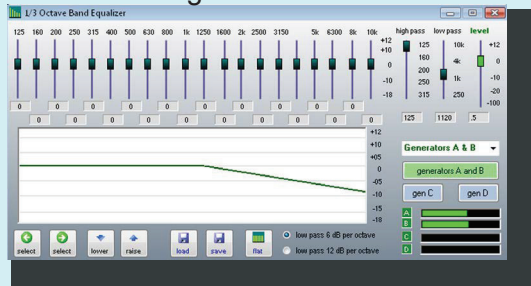
1/3 Octave Band EQ for soundmasking generators

### Inputs
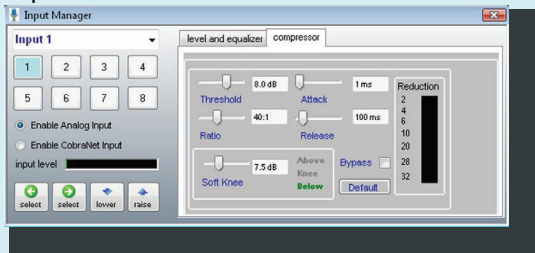
Input level control, Octave Band EQ and compressor for paging and music

### Outputs

12 channel audio mixers for each output provide the ability to customize masking, music and paging levels throughout the network on a per speaker basis. When connected to a DS8000 the twelve channel mixer is available to each speaker.

# Home Screen Views

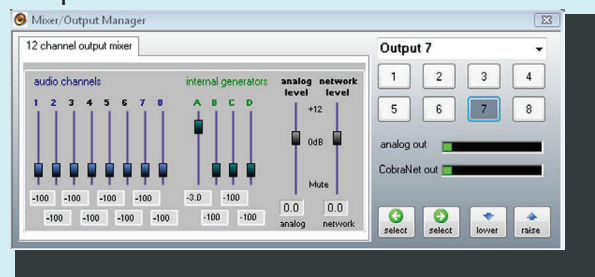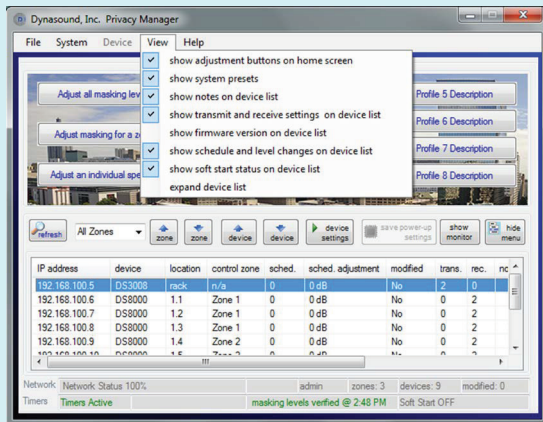The home screen appearance can be modified to suit user preferences. Information includes network information as well as access to and information about individual network devices.

## View Menu



The View menu offers the ability to display or hide the following system information:
- Quick adjustment utilities
- System presets
- User notes on device list
- Transmit and receive settings on device list
- Firmware version on device list
- Schedule and level information
- Soft start status
- Expanded device list

## Monitor View
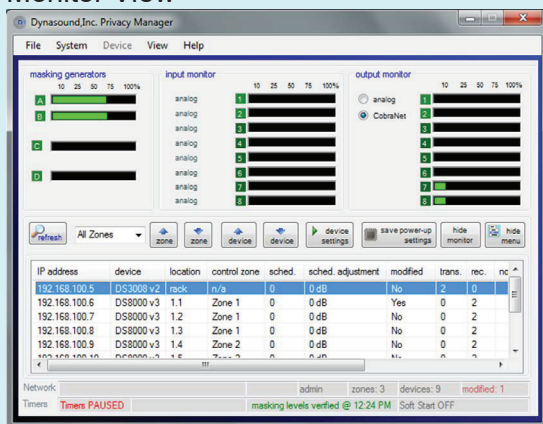


In monitor view, the soundmasking input and output levels are graphically represented. Monitor view provides an easy way to browse up and down the device list to verify the desired signal flow.

## Device View
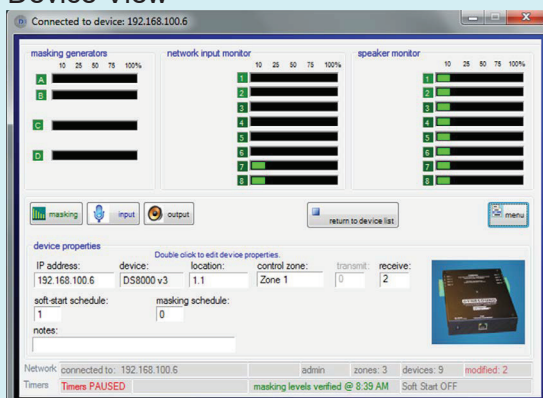


Device view is available after selecting a specific network device (DS3002, DS3008, or DS8000) from the list. This screen gives access to the internal soundmasking generators as well as the input and output processing for each device.

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# Home Screen Quick Adjustment Buttons

The three most common system adjustments may be done from the home screen, without the need to enter the individual device screeens. Once the system is configured, these features will be satisfy most routine adjustment needs.

## Adjusting All Soundmasking Levels



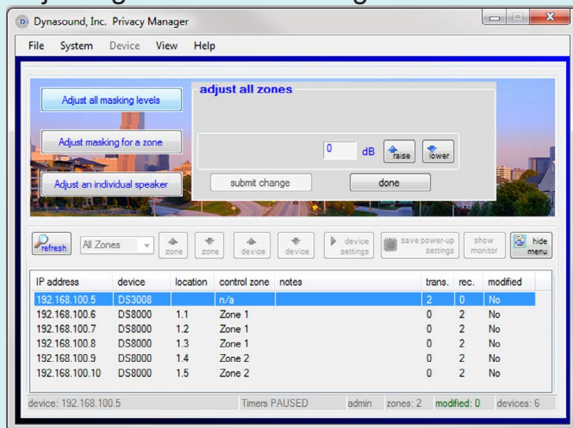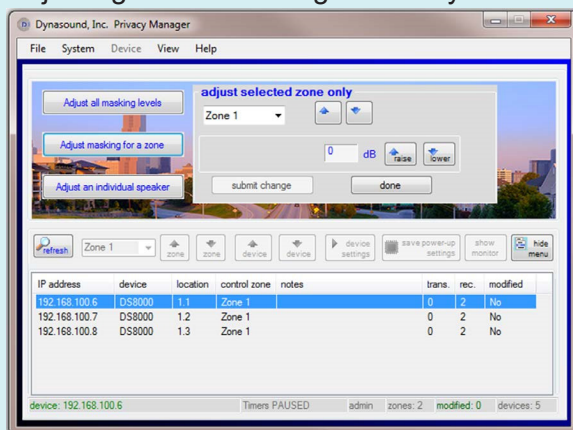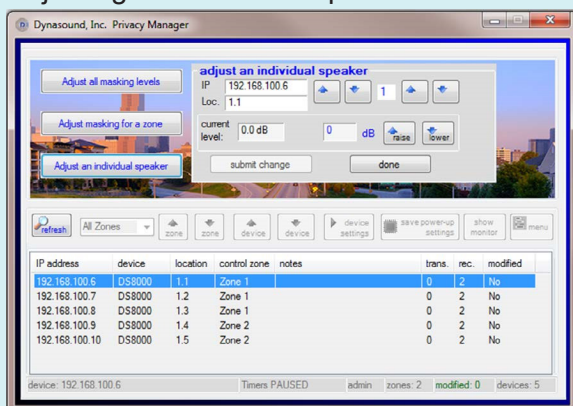After selecting the "Adjust all masking levels" button on the Home screen, this screen appears so that you can adjust the level for all zones simultaneously. For example, if you want to lower all soundmasking levels by 2 decibels, you would press the "lower" button until the display indicates minus 2. Click on the "submit changes" button to apply the change to the system.

## Adjusting Soundmasking Levels by Zone



After selecting the "Adjust masking levels for a zone" button on the Home screen, this screen appears so that you can adjust levels for the selected Zone. For example, if you want to lower the soundmasking levels in Zone 2 by 2 decibels, you would press the zone select buttons to choose "Zone 2". Then click the "down level" button until the display indicates minus 2. Click on the "submit changes" button to apply the change to the selected zone.

## Adjusting an Individual Speaker Level



After selecting the "Adjust an individual speaker" button on the Home screen, this screen appears so that you can adjust for the selected speaker. For example, if you want to raise the level for a specific speaker by 1.5 decibels, you would select the proper DS8000 speaker controller and the chosen speaker. The IP address and location are shown for each DS8000 (see page 9 for example of location/zone map). After using the "raise" button to select a change of 1.5 decibels, click the "submit changes" button to appy the change to the selected speaker.

# System Profiles

System profiles are used to store previously saved configurations for quick recall at the touch of a button. Up to eight user defined system profiles may be stored. Profiles may be saved and applied system wide or for a specific zone only.

## Loading Saved System Profiles
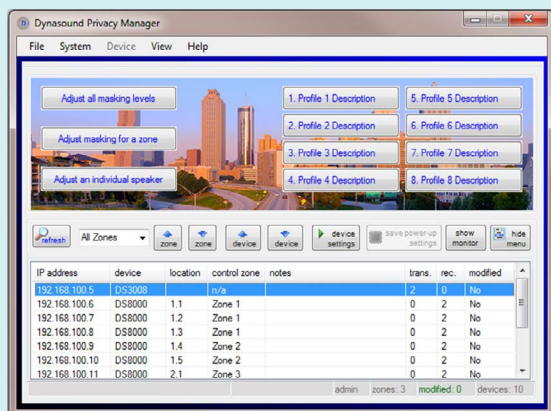


System profiles provide a user friendly way to recall system-wide configurations. To recall a previously saved profile simply select the desired button. You will be prompted to verify that you wish to replace the current profile with the selected profile.

Loading system profiles may also be done from the main drop down menu. Keyboard command shortcuts have been added to facilitate additional access methods.

## Saving System Profiles



System profiles provide a user friendly way to save system-wide configurations. The currently saved system configuration may be stored into one of the eight preset selections shown on the File menu.
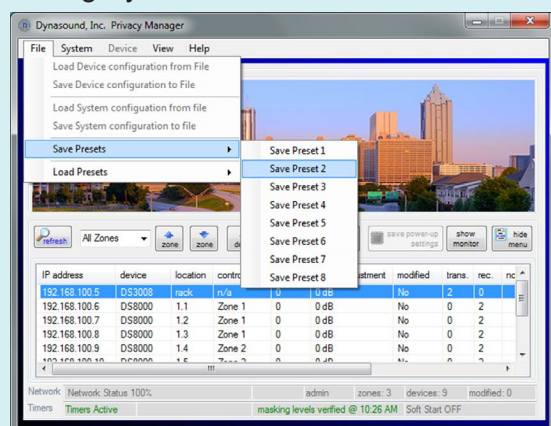
**!** A system profile cannot be created if there are pending edits/system saves. Profiles can only be created from System start-up settings which have been saved to non-volatile memory. If you edit any system settings the changes must be saved before using those settings to create a stored profile.

## Profile Schedules and Settings
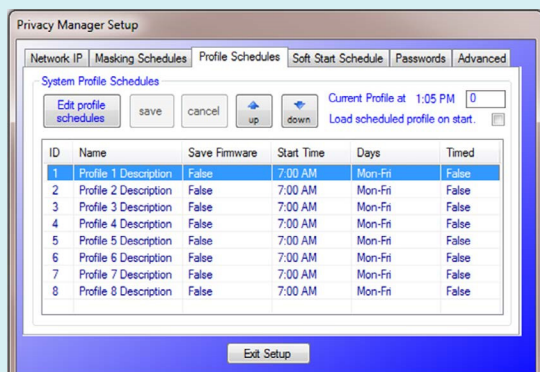


Saved system profiles may be configured to run on a scheduled basis. Unlike soundmasking schedules which have "up" and "down" times, profiles have a single time/day setting that triggers their start. A profile will stay in effect until another scheduled profile replaces it.

If the "Load scheduled profile on start" is selected, Privacy Manager will start the profile that should be running based the date and time. Profiles can also be configured to automatically save the start-up firmware if required.

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## Device Controls - Inputs, Soundmasking, and Outputs

DS3002, DS3008, and DS8000 processors have similar soundmasking, input and output processing, and controls. The appearance of the screens varies depending on which of the three devices you select.

**NOTE:** Choose a device on the Home Screen by clicking the "device settings" button. To open the Input Manager, click the input button. From the Input Manager window, you can use the drop-down menu to select a different device to adjust.
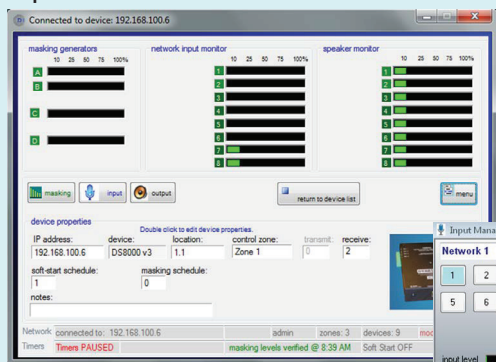
Inputs



The Input Manager is used to process the incoming audio signals, such as paging or music. The screen's appearance changes depending on the device being controlled. DS3002s and DS3008s include input compressors and the option of accepting an input via the balanced analog inputs or a CobraNet™ input. DS8000s always receive input via the network.
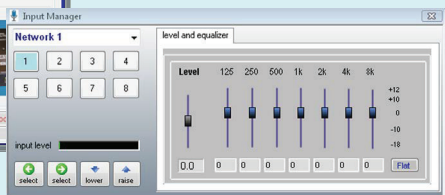
### DS3002 / DS3008 Inputs

Use the Input Manager to access level controls, equalizers and compressors for each input channel for the DS3002/DS3008, as shown aobve. Use the drop-down list or touchscreen buttons to change between input channels. The incoming signal may be either a line level input or a CobraNet™ audio input. The Input Manager does not route signals to any given output. Mixing and output routing is done with the Output Manager.
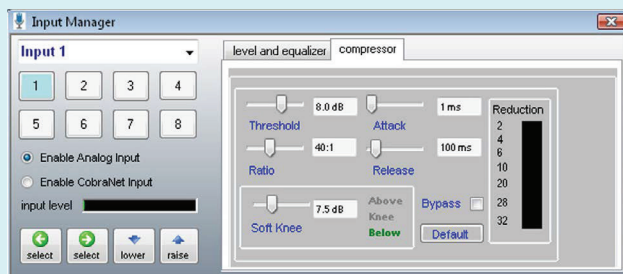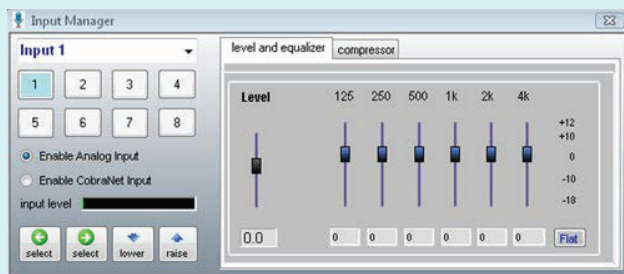


### DS8000 Inputs

Shown on the left above is the Input Manager as it appears when connected to a DS8000. The view on the right below is the Input Manager as it appears when the user selects either input 7 or input 8. These two inputs are linked allowing A and B broadcast soundmasking to be adjusted together. EQ of the broadcast masking is done at the DS3002, DS3008 level.
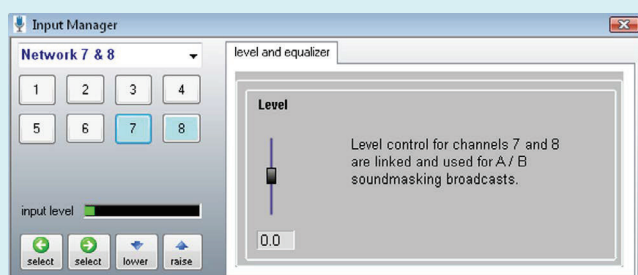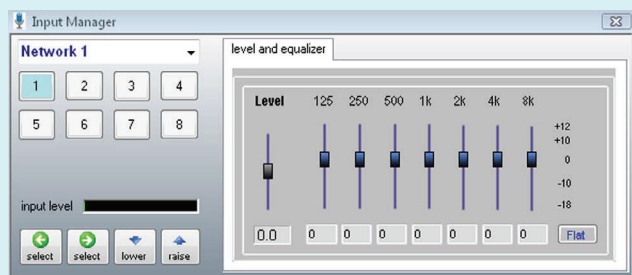
## Soundmasking Generators and Equalizers

### DS3002 / DS3008 / DS8000 Soundmasking
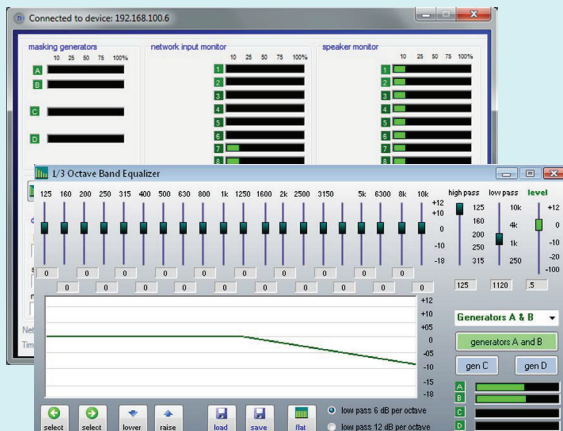
Select Soundmasking Manager from the main menu to access soundmasking controls for generators A-D. Note that by default the equalizer controls for generators A and B are linked to provide two channel masking using one equalizer to tune both A and B at the same time.

## Outputs

### DS3008 Outputs
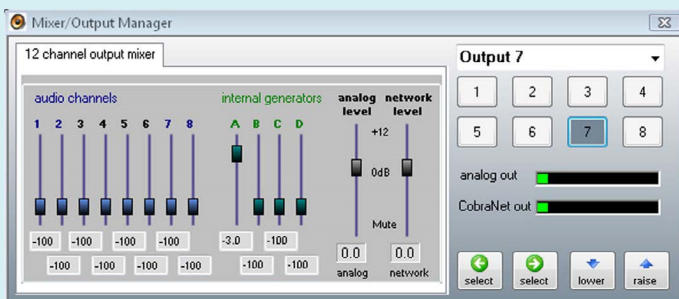
The output manager is used to process the signals routed to any given output channel. In the case of a DS3002 or DS3008 the output signals are both line level analog signals and CobraNet™ digital network audio signals.
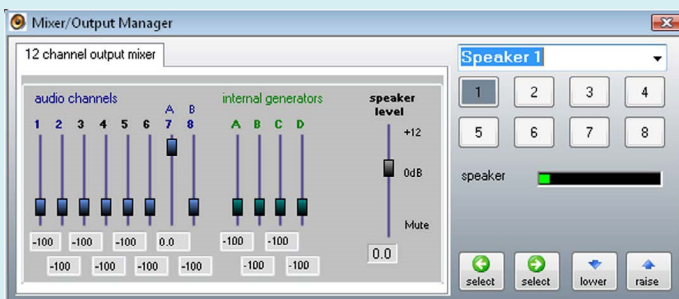
Note that the output manager for the DS8000 has one output level relating to an individual speaker.

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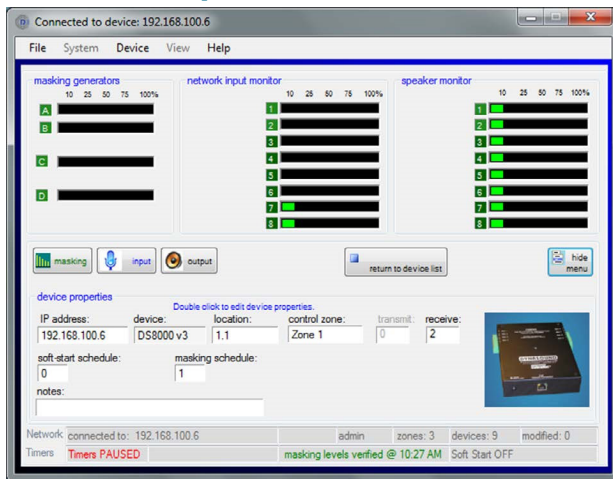
# Device Properties



Device properties, such as Zone ID, can be edited while connected to a specific DS3002/3008/8000. While connected to a device, simply double-click the field you wish to edit and enter the changes. The following device properties can be edited:

- location ID
- control zone
- transmit bundle ID
- receive bundle ID
- device IP address
- device notes
- soundmasking schedule
- soft start schedule

**Location ID:** The location is a text field that represents a physical location in the building and on the as-built drawings. It is used to identify the location of DS8000s. The normal naming convention is the floor number and a sequential number representing each DS8000. For example the 3 ea. DS8000s on the third floor would be 3.1 , 3.2 and 3.3.

**Control Zone:** Control Zone is a text field that can be various formats; however zone names are case-sensitive and care must be taken to properly group DS8000s into customized Control Zones.

**Transmit Bundle ID:** The default factory transmit bundle number for DS3002s and DS3008s is 2.

**Receive Bundle ID:** The default factory receive bundle number for DS8000s is 2.

> **!** Mismatched transmit and receive bundle numbers will result in no audio being delivered. There can be only one system Broadcaster for a given bundle. For example, you could not have two DS3008s broadcasting on the same bundle number.

**IP Address:** A static IP address is normally defined for each network device before leaving Dynasound. Once a system is in place and configured there is normally no need to change an IP address.

> **!** Changing IP addresses can make the DS3002, DS3008 or DS8000 become unreachable. All IP addresses must fall within a range that is compatible with the setting on your PC's network connection.

**Device Notes:** This is a text field that is used to store user comments or notes for a specific device.

**Soundmasking Schedules:** Soundmasking schedules may be user defined to raise and lower soundmasking levels based on time of day and day of the week. This setting applies a specific schedule to the DS8000. See the Soundmasking Schedules section on page 22 for more information on modifying and enabling soundmasking schecules. This feature requires a full time connected PC.

**Soft Start Schedule:** The Soft Start Schedule is a one-time schedule used to gradually introduce soundmasking into an existing non-masked office. This process is generally not required for new facilities. It is used to facilitate the addition of soundmasking to an already lived-in environment. This feature requires a full time connected PC controller.

# Device Transmit and Receive Settings
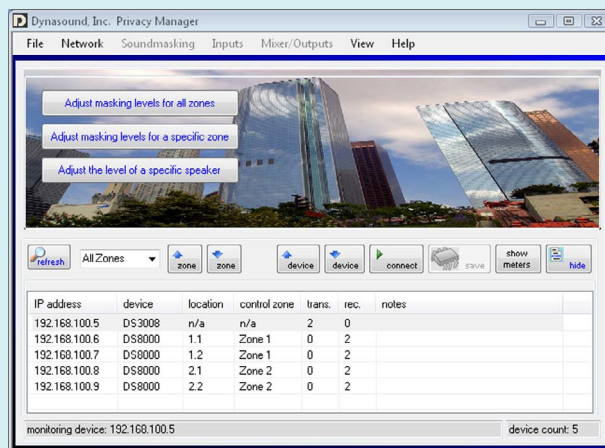


The most common system configuration calls for a DS3008 soundmasking processor used to introduce audio signals into the CobraNet™ network. DS8000 speaker controllers are used to receive and route the network audio bundles to any individual speaker or group of speakers. The incoming and outgoing signals are referred to as "bundles" instead of channels to avoid confusion, as each bundle contains 8 audio channels.

More than one DS3008 or DS3002 may be used to introduce additional transmit bundles into the network, which allows up to 32 audio channels on a single system.

## Transmit Bundle
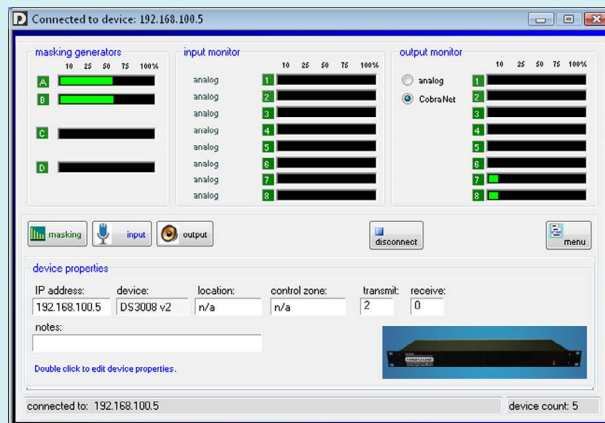


Each Dynasound network device (DS3002, DS3008, DS8000) has four internal soundmasking generators. The default system configuration uses the generators internal to the DS3008 or DS3002, broadcasting A-B masking on channels 7-8 as shown below. Additional soundmasking generators and spectrums may be utilized by employing the generators internal to the DS8000s or broadcasting additional soundmasking signals from the DS3008 on audio channels 1 through 6.
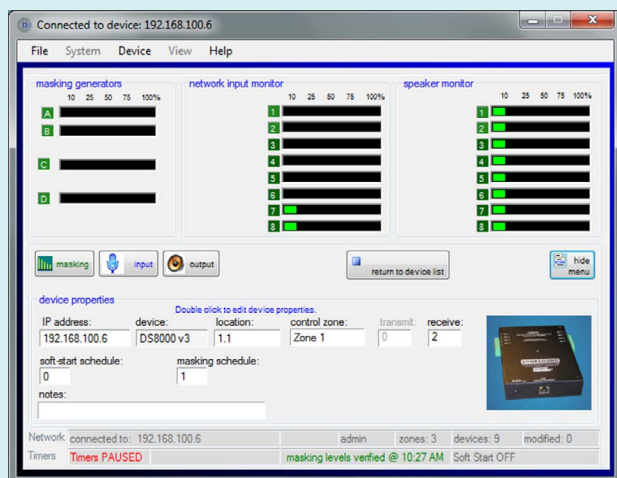
The default transmit bundle number is 2.

## Receive Bundle



The Transmit Bundle image on the left showsa DS3008 producing soundmasking on generators A and B and broadcasting it, via bundle 2, on outgoing channels 7 and 8.

The Receive Bundle image on the left shows a DS8000 receiving the soundmasking signals coming in via bundle 2, input channels 7 and 8 and being routed to all eight output (speaker) channels.

The default receive bundle number for the DS8000 is 2.

## Control Zones

It is important to understand how Control Zones function. In centralized systems, zones are hard-wired. In network systems zones may be defined and redefined via software with no rewiring needed. This feature provides the ability to make adjustments to an entire zone at the same time. A DS8000 on the network can be assigned to any control zone. You must have a clear understanding of Control Zones and their behavior and when you do not want to use them as well as when to use them. Let look at some examples:
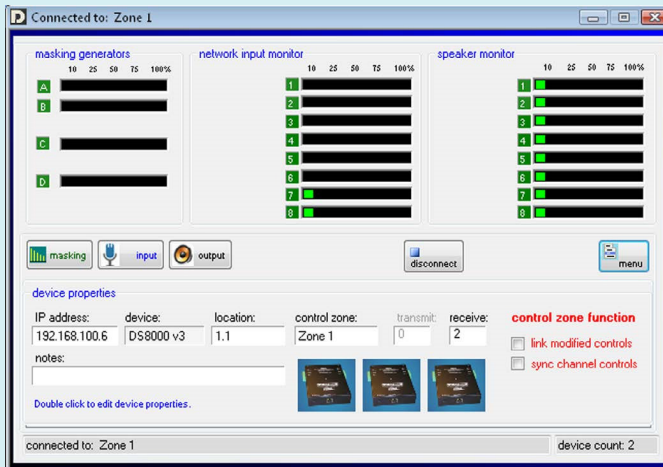


**1) What happens when "link modified controls" is checked?**
When "link modified controls" is checked, individual controls are linked within the Control Zone. Only controls that are moved are linked with other DS8000s in the Control Zone. Unadjusted controls are not modified in any way for any of the Control Zone members.

**2) What happens when "sync channel controls" is checked?**
When "sync channel controls" is checked, manager sections of Privacy Manager will be fully synchronized and adjusted simultaneously. This is most useful during initial setup or when reconfiguring a zone, and you want all DS8000s to be identical.
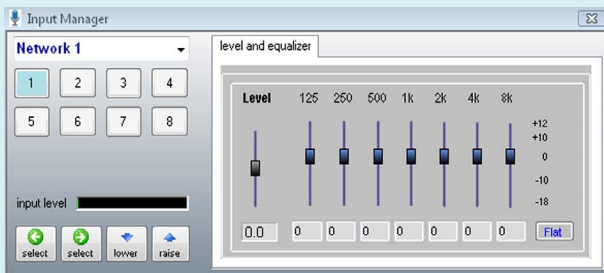


**3) What happens when neither is checked?**
When neither mode is selected, only the DS8000 to which you are connected receives the modifications.

**4) Adjusting paging and music levels per Control Zone.**
Adjusting the paging or music level for a particular area, or Control Zone, illustrates the convenience of linking controls together.



**5) Adjusting Broadcast masking levels per Control Zone.**
Adjusting the broadcasted A-B soundmasking level for a particular area, or Control Zone, illustrates the convenience of linking controls together. The Input Manager image on the left shows how the soundmasking levels for network channels 7 and 8 can be adjusted with one control, for all DS8000s in the Control Zone.
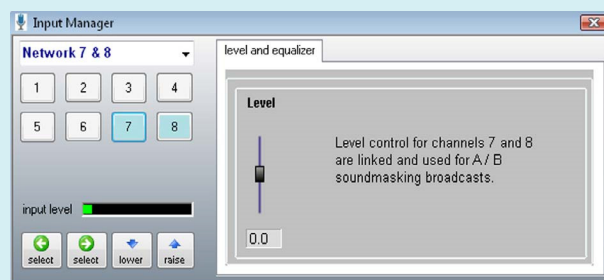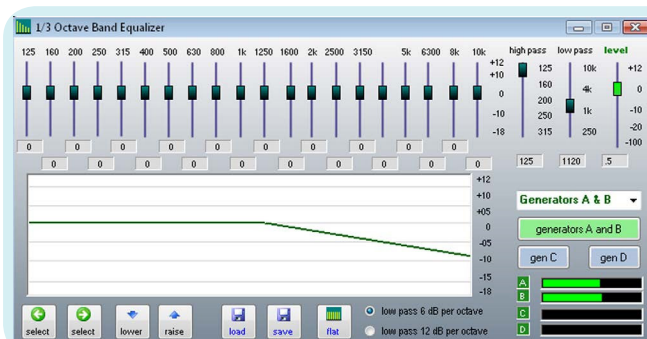
**6) Adjusting distributed masking generators per Control Zone.**
Adjusting the distributed soundmasking levels for a particular Control Zone illustrates the convenience of linking controls together. On networked systems that use the local generator/ equalizers in the DS8000s, it is beneficial to tune/ adjust them, en masse.

## When Not to Use Control Zone Features
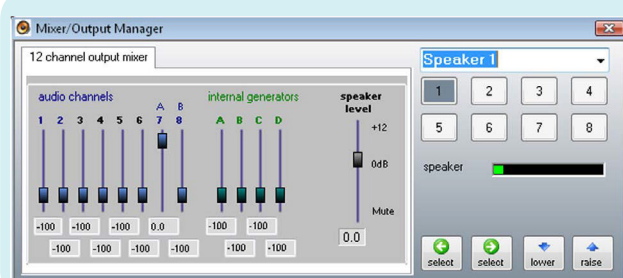


**1) Adjusting a single speaker.**
This would be the wrong mode for adjusting a speaker level. For example, if on the Output Manager screen on the left the speaker level was adjusted while in "link" mode, each speaker number one would be raised for each DS8000 in the Control Zone.

## Control Zone - Best Practices

Using the Control Zone feature is a powerful way to quickly adjust multiple DS8000s. In the worst case scenario it can also be a way to inadvertently mass duplicate unwanted actions.

In general, using the link or sync mode will be most helpful when initially configuring a system.

Minor system adjustments such as raising or lowering the level of a speaker is best done in non-linked mode. Raising or lowering soundmasking levels per zone can be done via the user friendly home screen buttons, eliminating the need for most end users to worry about proper use of Control Zones.

## Soundmasking Schedules

### Editing Soundmasking Schedules
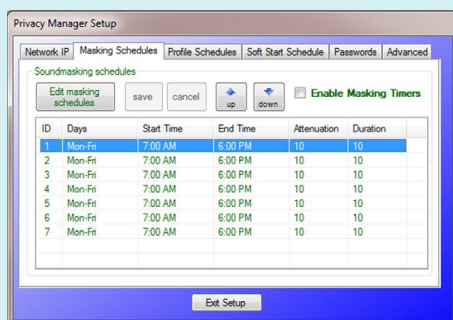


Soundmasking levels may be scheduled to raise and lower at specific times of the day and day of the week. The schedules shown are the default schedules installed during Privacy Manager installation.

Seven schedules are available for modification and assignment to individual DS8000s as shown below.
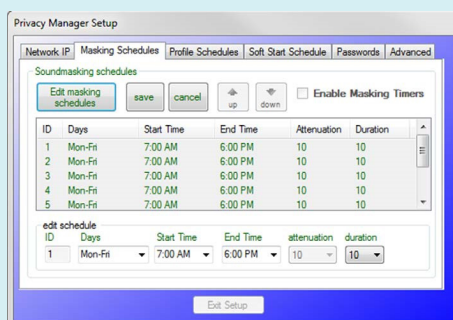


Select the desired schedule and click the Edit masking schedules button to display the "edit schedules" screen shown here. Soundmasking schedules have beginning and ending times. The days of the week they are active is also user-selectable. Attenuation is the amount the soundmasking will be lowered. Duration is the time it takes to change levels.

### Assigning Schedules
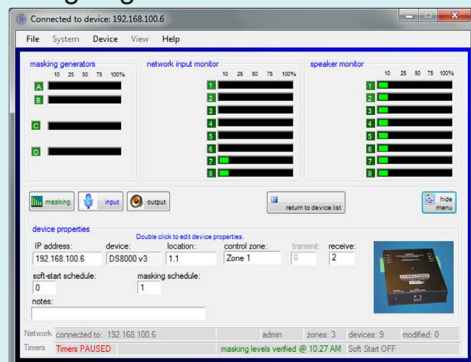


To assign any of the available seven soundmasking schedules to an individual DS8000, simply double-click the "masking schedule" text box and select the desired schedule. The image on the left shows the DS8000 has been set to masking schedule 1.

### Assinging Schedules by Zone
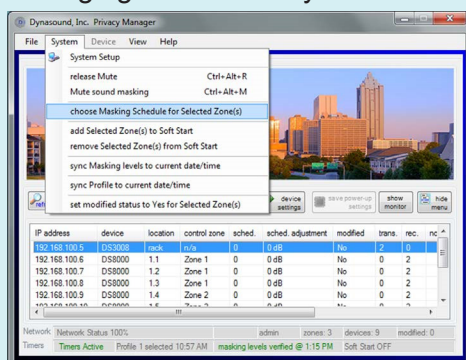


To assign any of the available seven soundmasking schedules to an individual DS8000 simply double click the schedule text box and select the desired schedule. The image on the left shows the DS8000 has been set to schedule 1.

The Soft Start schedule described below may also be assigned per zone.

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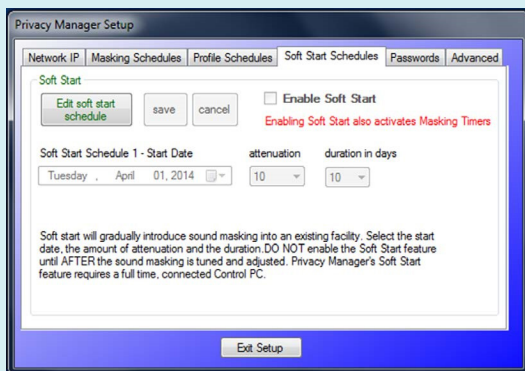
Using the Soft Start Schedule
For environments where soundmasking is being integrated into an existing non-masked environment it may be desireable to gradually introduce the masking levels.

Editing the Soft Start Schedule
Unlike reccuring schedules, one-time schedules do not repeat. User-selectable criteria is the start date, the amount of attenuation, and the duration of the soft start in days. One schedule is available for assignment to individual DS8000s as shown below.
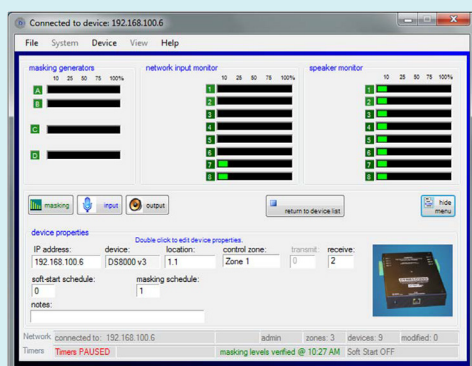
Assigning the Soft Start Schedule
To join a DS8000 to any of the available seven soundmasking schedules, simply double-click the "soft-start schedule" text box and select the desired schedule. Only one schedule is available for assignment to individual DS8000s.

DS8000s or Zones may be assigned to both reccuring soundmasking schedules and one-time soft start schedules at the same time.

# Saving System Power-Up Settings
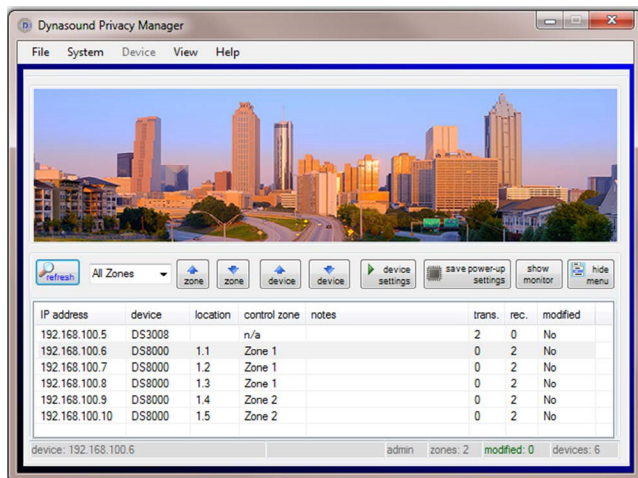


It is important to understand this feature.

Saving a configuration to a PC file does not save the configuration to permanent memory in the DS3002, DS3008, or DS8000. Your PC connection must remain intact while saving configurations to the non-volatile firmware memory of the devices.

To save the current DSP configuration to permanent memory, select the "save power-up settings" button. Status is shown on the Home Screen during the save process.

**!** Device configurations must be saved to permanent, non-volatile memory, or upon restart (such as after a building power failure) the device(s) will revert to the last saved configuration.

## Saving System Power-Up Settings - Best Practices

The requirement to save the start-up settings of a system varies with the type and configuration of the system.

For a system that does not have a touchscreen controller and only uses one configuration, it is essential that the start-up configuration be saved to permanent memory. If the configuration is not saved to start-up memory the system would default back to the factory settings after a power failure.

For a system that has a touchscreen controller and uses soundmasking schedules to vary the soundmasking levels based on time of day and day of the week, or a system that uses time profiles, there is less need to save any profile other than a default start-up profile. In the case of a power outage, the touchscreen controller will set the system to the correct configuration shortly after power-up.

For systems that utilize timed profiles, there is an option to save the start up firmware settings after loading a profile. This is generally not advised. The reason it is offered is to give the user the option to save a profile that might change infrequently into start up memory so there is no delay in running that profile after a power failure. The reason it is not generally advised is that the touchscreen controller will rerun the correct timed profile anyway within a short period of time. In this scenario the permanently saved start-up profile is of little importance, other than being acceptable during the brief system start-up period.

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## Saving and Restoring Device Settings with a Disk File
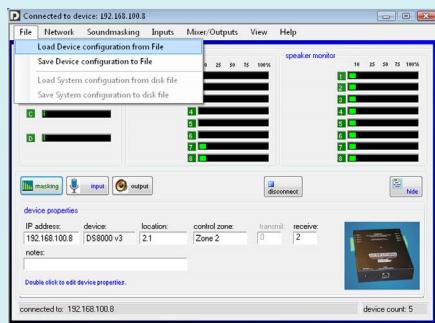


Device configurations can be loaded using the standard Windows™ file navigation screens.

Device configuration files may only be saved or loaded while connected to a specific device.

**!** It is important to note that significant level changes may occur when loading new configurations. The settings are applied as soon as the file is loaded.

## Saving and Restoring Total System Settings with a Disk File
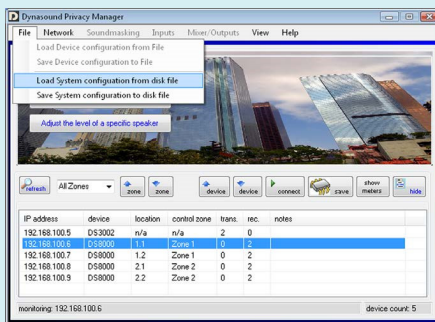


Entire system configurations can be saved using the standard Windows™ file navigation screens. System configuration files may only be saved while in monitor mode and not connected to a single device. The "Save system configuration to disk file" process builds an archive file from the currrently active device list. In order to save the information for all devices you must select All Zones and refresh.

**!** In order to save all network device configurations to a disk file, ALL devices must be in the device list. Be sure to select "All Zones" and "refresh" before saving system files.

# Dynasound DS3002 and DS3008

The Dynasound DS3008 is a network-ready soundmasking/paging/music processor incorporating four soundmasking generators, eight balanced audio inputs, eight balanced audio outputs, and a 12x8 matrix mixer allowing any combination of audio channels to be routed to any of 8 balanced outputs The Dynasound DS3002 is a similar device incorporating four soundmasking generators, two balanced audio inputs, two balanced audio outputs, and a 6x8 matrix mixer.

For use in networked masking/paging/music systems the DS3002 and DS3008 processors also provide eight channels of networked digital audio via CobraNet™. Each input has a six band equalizer, and compressor. Each soundmasking generator has separate 1/3 octave band EQ, high pass and low pass filters.

## Physical Installation of the DS3002 and DS3008

The DS3002/DS3008 is designed to fit standard 19 inch electronic equipment racks. No special cooling is required although the unit should not be operated in excessively hot, humid, or harsh environments.

**DS3008**                    **DS3002**

## Controlling the DS3002/DS3008 From Your PC

Direct connection between the DS3008/DS3002 and a PC may be accomplished using a standard cross-over cable (supplied). When used in a networked system the DS3002 or DS3008 and all DS8000s are accessed through the network.

## Connecting Paging, Music, or Other Audio Inputs

The DS3002/DS3008 balanced inputs and outputs are on the rear panel. The connectors are pluggable connectors which can be removed, for ease of wiring, and reinserted. Input impedance is nominally 5000 ohms.

**!** When connecting an unbalanced line (two conductors) to a DS3002/DS3008 input or output use only the positive(+) and ground terminals, leaving the negative(-) position floating, or unused.

## Typical Telephone Paging Connection and Operation

**!** Do not connect digital or analog telephone extensions or ports directly into the DS3002 or DS3008 audio inputs. The balanced audio inputs are for line level audio signals only.

Most commercial telephone systems require a page adaptor in order to output an analog line-level audio signals suitable for connection to standard commercial paging amplifiers. The balanced inputs on the DS3002 and DS3008 processors are similar to those found on typical commercial audio amplifiers/mixers in that they accept audio signals only and do not process DTMF, loop start, ground start, or other telephone protocols. The type of paging adaptor required depends more on the phone system than on the masking or paging system. For example an IP based phone system would require a different page adaptor than an classic POTS system.

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However the signal output from the adaptor would be similar; a line level audio signal suitable for input to a commercial paging amplifier. Information and support regarding commercial paging adaptors is available via companies such as Valcom ( www.valcom.com) and Bogen.

# Dynasound DS8000

The Dynasound DS8000 is a PoE (Power over Ethernet) network-controlled soundmasking/paging/music processor incorporating four soundmasking generators, eight network audio inputs, eight 4-8 ohm speaker outputs and a 12x8 matrix mixer allowing any combination of inputs and soundmasking generators to be mixed to any of the eight speaker outputs.

In addition each network input has a dedicated 7 band equalizer. Each soundmasking generator has separate 1/3 octave band EQ, high pass and low pass filters.

**DS8000**

The DS8000 is designed to accept network audio signals from a Dynasound DS3008 or DS3002 soundmasking processor via standard network PoE switches.

## Physical Installation of the DS8000

The DS8000 is shipped with hardware for either independent mounting or for attachment to speaker suspension wires. For independent mounting the eyebolt can be used to suspend the speaker in the same manner as the Dynasound DS1356 speaker. For attachment to speaker hanging wires, the supplied "grid-wire" clip can be used.

## Connecting Speakers to the DS8000

The DS8000 provides eight speaker level outputs for connection to the Dynasound DS1356 speaker. Speaker connections to the DS8000 are made with 2 conductor pluggable connectors. Wire should be minimum 18 gauge copper stranded. NOTE: The DS8000 is NOT intended for use with DS1338 speakers or any other 70 volt speakers. The DS8000 is intended for use with 4 ohm through 8 ohm speakers only.

## Connecting the DS8000 to the Soundmasking Network

The DS8000 is the first networked soundmasking system to be powered using Power over Ethernet (Poe). Connections are made using standard Cat 5 cables. The network cable provides power and digital audio to the DS8000s.

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## DS3002 DSP Block Diagram



The DS3002 provides two audio inputs which can be configured to be either analog or CobraNet™. There are four internal soundmasking generators, each having 1/3 octave EQ, high and low pass filters. A six input matrix mixer feeds eight output channels which are routed to both analog and CobraNet™ outputs.



**DS3002**

# DS3008 DSP Block Diagram



analog and network audio inputs - controlled with Input Manager

matrix mixer with analog and network outputs - controlled with Output Manager

Internal Soundmasking - controlled with Soundmasking Manager
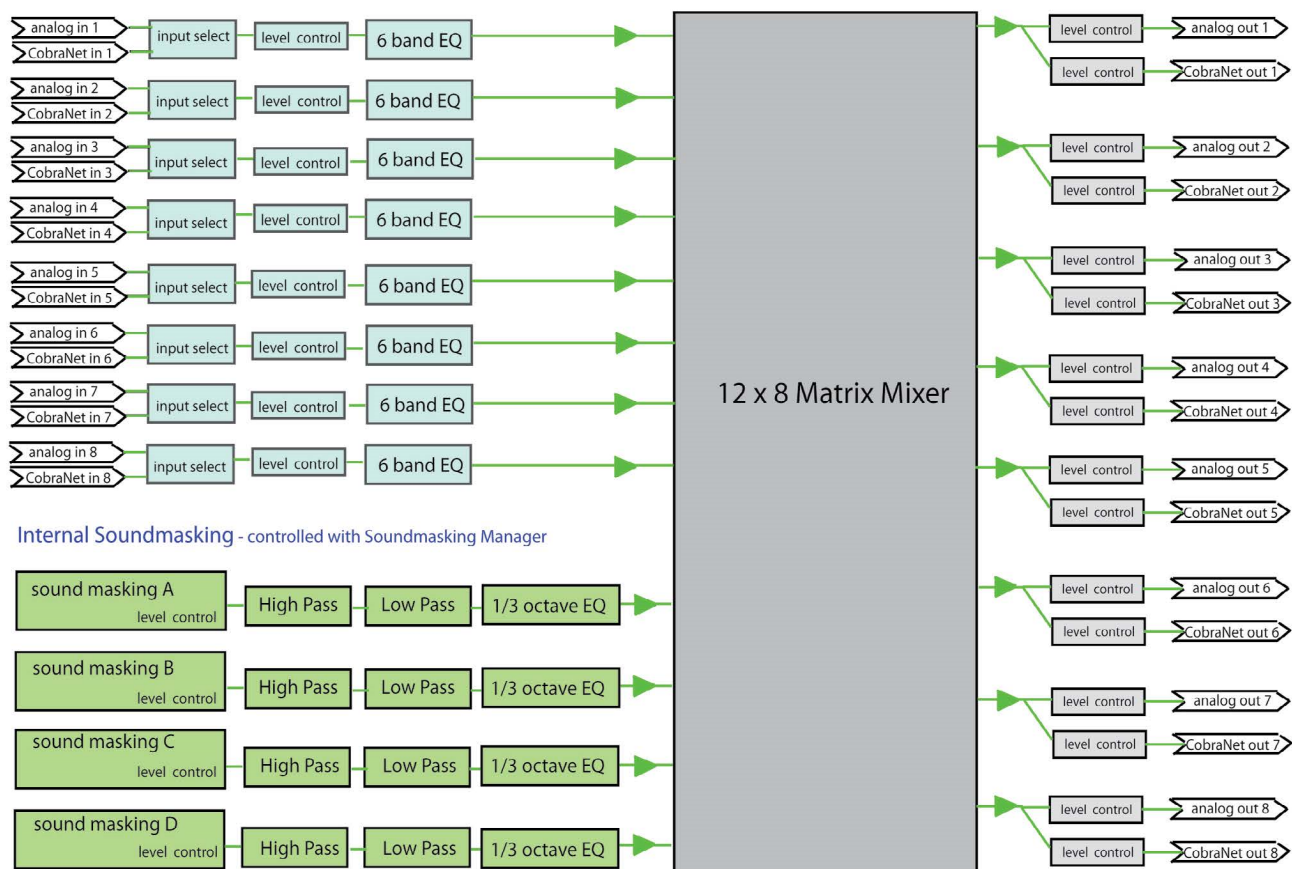
12 x 8 Matrix Mixer

The DS3008 provides eight audio inputs which can be configured to be either analog or CobraNet™. There are four internal soundmasking generators, each having 1/3 octave EQ, high and low pass filters. A twelve input matrix mixer feeds eight output channels which are routed to both analog and CobraNet™ outputs.



**DS3008**

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# DS8000 DSP Block Diagram - Version 3



The DS8000 provides eight network audio inputs. There are four internal soundmasking generators, each having 1/3 octave EQ, high and low pass filters. A twelve input matrix mixer feeds each speaker output.



**DS8000**

# DS8000 Firmware Version - Version 1

**Network Audio Inputs** - controlled with Input Manager

**Matrix Mixer with Speaker Outputs** - controlled with Output Manager

CobraNet in 1 → level control → 7 band EQ → 
CobraNet in 2 → level control → 7 band EQ → 
CobraNet in 3 → level control → 7 band EQ → 
CobraNet in 4 → level control → 7 band EQ → 
CobraNet in 5 → level control → 7 band EQ → 
CobraNet in 6 → level control → 7 band EQ → 
CobraNet in 7 → level control (software linked) → 7 band EQ → 
CobraNet in 8 → level control → 7 band EQ → 

**Internal Soundmasking** - controlled with Soundmasking Manager

sound masking A | level control → High Pass → Low Pass → 1/3 octave EQ → 
sound masking B | level control → High Pass → Low Pass → 1/3 octave EQ → 
sound masking C | level control → High Pass → Low Pass → 1/3 octave EQ → 
sound masking D | level control → High Pass → Low Pass → 1/3 octave EQ → 

**12 x 8 Matrix Mixer**

PoE limiter → level control → speaker 1
PoE limiter → level control → speaker 2
PoE limiter → level control → speaker 3
PoE limiter → level control → speaker 4
PoE limiter → level control → speaker 5
PoE limiter → level control → speaker 6
PoE limiter → level control → speaker 7
PoE limiter → level control → speaker 8

# DS8000 Firmware Version - Version 2

**Network Audio Inputs** - controlled with Input Manager

**Matrix Mixer with Speaker Outputs** - controlled with Output Manager

CobraNet in 1 → high pass → limiter → level control → 7 band EQ → 
CobraNet in 2 → high pass → limiter → level control → 7 band EQ → 
CobraNet in 3 → high pass → limiter → level control → 7 band EQ → 
CobraNet in 4 → high pass → limiter → level control → 7 band EQ → 
CobraNet in 5 → high pass → limiter → level control → 7 band EQ → 
CobraNet in 6 → high pass → limiter → level control → 7 band EQ → 
CobraNet in 7 → high pass → limiter → level control (software linked) → 7 band EQ → 
CobraNet in 8 → high pass → limiter → level control → 7 band EQ → 

**Internal Soundmasking** - controlled with Soundmasking Manager

sound masking A | level control → High Pass → Low Pass → 1/3 octave EQ → 
sound masking B | level control → High Pass → Low Pass → 1/3 octave EQ → 

**12 x 8 Matrix Mixer**

PoE limiter → level control → speaker 1
PoE limiter → level control → speaker 2
PoE limiter → level control → speaker 3
PoE limiter → level control → speaker 4
PoE limiter → level control → speaker 5
PoE limiter → level control → speaker 6
PoE limiter → level control → speaker 7
PoE limiter → level control → speaker 8

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## DSM16 Contact Closure Module - Fire Alarm Mute



Privacy Manager 8.0 introduced the contact closure option for triggering system functions. Currently implemented is a feature used to mute the soundmasking system. Contact closure is normally provided by the fire alarm system upon alarm condition.

The settings for the Dynasound DSM16 module must be set to Comm Port 1 and 115200 Baud. The Interval can be specified to control how often the contact closure status is polled.

## DSM16 Contact Closure Module - Profile Selection

## Using the DS1404 Programmable Level Controller

Dynasound's DS1404 programmable level controller is a level control scheduler for systems not having a touchscreen controller. The DS1404 is a non-networked product that must be connected to the analog audio input and output jacks of the DS3008. The DS1404 can only schedule the broadcast soundmasking and not soundmasking generated locally in the DS8000.

The DS1404 can also be used to vary incoming music signals, night bell ringers etc., based on a time schedule. Refer to the DS1404 documentation for configuring time schedules and holidays.

### Wiring and Configuring the DS3008 Masking Processor and DS1404 Level Controller

The following steps are recommended to connect a DS1404 level controller to a DS3008 soundmasking paging processor. The DS1404 is used to provide scheduling features to the broadcast A-B soundmasking signals by looping them through the DS1404 before broadcast to the soundmasking network.

Physical Connections to create two-channel audio loop:
- Connect analog output 5 of the DS3008 to input 1 of the DS1404
- Connect analog output 6 of the DS3008 to input 2 of the DS1404
- Connect output 1 of the DS1404 to analog input 7 of the DS3008
- Connect output 2 of the DS1404 to analog input 8 of the DS3008

**NOTE:** Wire the two terminal connection on the DS1404 to the three wire balanced connection on the DS3008 using the postive and ground terminals on the DS3008. Do not connect the negative terminals on the DS3008.

DS3008 Mixer/Output software setup:
- Route masking generator A out of analog output 5 (factory default is routed to output 7)
- Route masking generator B out of analog output 6 (factory default is routed to output 8)
- Turn off the network output for network output 5 and network output 6
- Route analog input 7 to network output 7
- Route analog input 8 to network output 8

DS3008 Input software Setup:
- Optionally increase the input levels for analog inputs 7 and 8 to accommodate nominal 6 dB loss from balanced to unbalanced connection

### Summary

The factory default DS3008 configuration is that generators A and B broadcast on network channels 7 and 8. The steps above simply reroute the two masking signals out of analog 5 and 6, through the DS1404, back into analog 7 and 8. The two incoming, time-varied, masking signals are then broadcast to the network. The settings in the DS8000s remain at factory defaults.

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# Initial Installation and System Configuration

Before installing the soundmasking network you will require a drawing showing the location of DS8000s and speakers. In the case of a new project being shipped, the DS8000s will be pre-configured and labeled. This means they must be installed in accordance with the drawings so that the system may be tuned and adjusted and so that the end user may manage the system at a later date.

The factory IP address for DS3002 and DS3008 devices is 192.168.100.5 - Transmit Bundle Number 2 Rec 0

The factory IP address for DS8000 devices is 192.168.100.6 through 192.168.100.200 - Rec Bundle Number 2

Control devices such as PCs or touchscreen devices are normally 192.168.100.220 through 192.168.100.250

Contact Tech support if you have installation, relocation or system expansion questions.

## Alternate Configurations and Applications

As previously described, the standard network configuration is a DS3008 broadcasting to groups of DS8000s. There are more possibilities. For example if no paging or music signals are required, an addressable network of DS8000s can be used without a network broadcaster, still allowing for very precise soundmasking adjustment on a per speaker basis. The soundmasking generators inside each DS8000 would be active in this scenario.

Additional DS3008 and DS3002 processors may also be used in complex networks to provide Analog to Digital or Digital to Analog conversion used to introduce or extract audio signals to or from the digital audio network.

## System Configuration Files

The following files are located in the directory where Privacy Manager is installed. The location is c:\Dynasound\PrivacyManager:
- Four files contain configuration and IP settings: DSIControl.ini , Profiles.dat , SoftStart.dat , maskingSchedules.dat
- Eight files contain the system pre-set definitions: Preset1.dsi , Preset2.dsi , Preset3.dsi , Preset4.dsi , Preset5.dsi , Preset6.dsi , Preset7.dsi and Preset8.dsi

These files can be restored to the original status using the options shown on the previous page.

## Compatibility with other Products

Dynasound audio networking products use CobraNet™ and as such are compatible with CobraNet™ products from other pro audio manufacturers. Such products include network audio amplifiers, network ready microphone jacks and more.

Dynasound audio networking products are controlled with industry standard SNMP technology permitting interface with a variety of industrial control products. Contact tech support for more information.

# Specifications

## DS3002

**Inputs:** 2 each balanced inputs using pluggable connectors and CobraNet™ each input with 6 band EQ and compressor - 20 K impedance

**Outputs:** 2 each balanced outputs using pluggable connectors and CobraNet™

**Mixers:** 6x8 matrix mixer

**Soundmasking Generators:** 4 each internal soundmasking generators with 1/3 octave band EQ, selectable 6/12 dB per octave roll-off low pass and selectable high pass filters.

**Input Power:** 120VAC 60 Hz 21.5 watts

**Power Consumption:** 16 volts, 1000 mA. - Use only with provided power supply.

**Dimensions:** Standard 19" NEMA Equipment Rack Mount - depth 8 inches maximum

**Operating Temperature:** 40°c

## DS3008

**Inputs:** 8 each balanced inputs using pluggable connectors and CobraNet™ each input with 6 band EQ and compressor - 20 K impedance

**Outputs:** 8 ea. channels balanced analog via pluggable connectors and CobraNet™

**Mixers:** 12x8 matrix mixer

**Soundmasking Generators:** 4 each internal soundmasking generators with 1/3 octave band EQ, selectable 6/12 dB per octave roll-off low pass and selectable high pass filters.

**Input Power:** 120VAC 60 Hz 21.5 watts

**Power Consumption:** 16 volts, 1000 mA. - Use only with provided power supply.

**Dimensions:** Standard 19" NEMA Equipment Rack Mount - depth 8 inches maximum

**Operating Temperature:** 40°c

## DS8000

**Inputs:** CobraNet™ networked digital audio each input with 7 band EQ

**Outputs:** 8 each channels - 1 watt @ 8 ohms using pluggable connectors

**Mixers:** 12x8 matrix mixer

**Soundmasking Generators:** 4 each internal soundmasking generators with 1/3 octave band EQ, selectable 6/12 dB per octave roll-off low pass and high pass filters.

**Input Power:** Power over Ethernet Typical power consumption 3 -5 watts, with a maximum 12 watts.

**Dimensions:** 7.25 " long x 5.25 inches wide x 1.25 inches deep, maximum

**Operating Temperature:** 40°c

## System Notes:

Starting IP address: 192.168.100

Ending IP address: 192.168.100

Non-Used IP addresses: _____

2nd Starting IP address: 192.168.101

2nd Ending IP address: 192.168.101

Non-Used IP addresses: _____

Audio channels (paging music and masking):

network channel 1: _____

network channel 2: _____

network channel 3: _____

network channel 4: _____

network channel 5: _____

network channel 6: _____

network channel 7: masking A _____

network channel 8: masking B _____

System notes:

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## Tech Support

Software updates and the latest documentation can be downloaded from the Dynasound web site. Go to www.soundmasking.com/support

For additional support:
Patrick Gillilan, Dynasound, Inc.
Nationwide (800) 989-6275 ext 14
In Georgia (770) 242-8176 ext 14
Cell / After business hours (770)-634-3000
email: gillilan@dynasound.com

## Warranty

DYNASOUND IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUNDMASKING EQUIPMENT DESCRIBED IN THIS MANUAL.

DYNASOUND expressly warrants this product to be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase as a new product from an authorized DYNASOUND dealer under the following conditions:

1. In the event the warranted DYNASOUND product requires service during the warranty period, DYNASOUND will repair or replace, at its option, defective materials, provided that the original purchaser attains a Return To Manufacturer Authorization (RMA) number by contacting DYNASOUND, then shipping or transporting the unit to the manufacturer at the address below. Transportation and insurance charges to the DYNASOUND factory for warranted products or components thereof to obtain repairs shall be the responsibility of the purchaser. DYNASOUND will return ship the product at factory expense in the same manner received.

2. This warranty will be VOIDED if the serial number has been removed or defaced; or if the product has been subjected to accidental damage, abuse, rental usage, alterations, or attempted repair by any person not authorized by DYNASOUND to make repairs; or if the product has been installed contrary to DYNASOUND System's recommendations.

3. Electro-mechanical fans, electrolytic capacitors, and the normal wear and tear of appearance items such as paint, knobs, handles, and covers are not covered under this warranty.

4. DYNASOUND shall not in any event be liable for special, incidental, or consequential damages, including lost profits, loss of use, property damage, injury to goodwill, or other economic loss of any sort. Except as expressly provided herein, DYNASOUND disclaims all other liability to purchaser or any other persons arising

out of use or performance of the product, including liability for negligence or strict liability in tort.

5. This warranty is in lieu of all other warranties expressed or implied. DYNASOUND expressly disclaims all implied warranties of merchantability and fitness for a particular purpose. The remedies set forth herein shall be the purchaser's sole and exclusive remedies with respect to any defective product. The agents, employees, distributors, and dealers of DYNASOUND products are not authorized to modify this warranty or to make additional warranties binding on DYNASOUND systems. Accordingly, additional statements such as dealer advertisements or representations do not constitute warranties by DYNASOUND.

6. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

**Dynasound, Inc.**

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**Norcross, Georgia 30071**

**Nationwide (800) 989-6275**

**In Georgia (770) 242-8176**

**www.soundmasking.com**