
DYNASOUND[®]



DS1404 4-Ch. PC programmable soundmasking level controller

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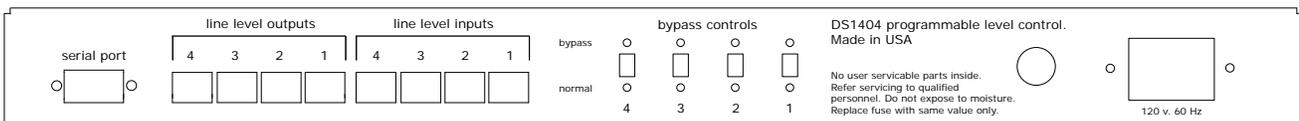
About the DS1404

The DS1404 is a four channel, PC programmable, line-level attenuator used primarily to control soundmasking levels based on date and time-of-day. The DS1404 can also be used to provide attenuation schedules for background music or paging signals. Highly configurable custom schedules can be created and downloaded to the DS1404 using the provided Windows based software.

The front of the unit provides buttons used for minor changes, such as adjusting the time of day. The front panel buttons are also used to toggle the display between channels 1-2 and 3-4. The rear panel provides line level input and output connections via industry standard Phoenix™ connectors, a com port for PC connections and bypass controls.



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Installing the DS1404 Control Software

The DS1404 is shipped with a CD containing the DS1404 control software. Insert the CD and run the included program called “setup.exe” and follow the prompts.

Updated versions of the DS1404 software are available for download at www.soundmasking.com/support.

This software allows configuration of each channel of the DS1404 and provides several system wide options such as soft start on power-up, holiday schedules and Daylight Saving Time settings.

Installing the DS1404 Controller

The DS1404 is designed to be installed into any standard 19” wide equipment rack. Typically, the inputs of the DS1404 will be connected to the outputs of a soundmasking generator and the outputs of the DS1404 will provide signal to the soundmasking system amplifier input(s).

It is important to note that the inputs and outputs of the DS1404 share a “common” terminal which is on the right side (when facing the rear of the unit) of each Phoenix™ connector. “Common” and “Positive” terminals must not be interchanged or the DS1404 will not properly attenuate signals.

The rear panel Bypass switches are used to pass signals through the clock inputs and outputs without any attenuation. In bypass mode, signals are passed through even if the DS1404 is unpowered. No DS1404 features, such as soft-start are active when in Bypass mode.

Connecting your PC to the DS1404

Connection from the PC to the DS1404 is made through your PC’s com. port. If your PC does not have a standard 9 pin, RS-232, communications port you must use a USB to Com adaptor in order to connect the DS1404 to your PC’s USB port.

Using the cable supplied with the DS1404, connect your PC’s com port (or USB adaptor) to the port labeled serial port on the back of the DS1404. See the following sections for activating the connection and configuring the DS1404.

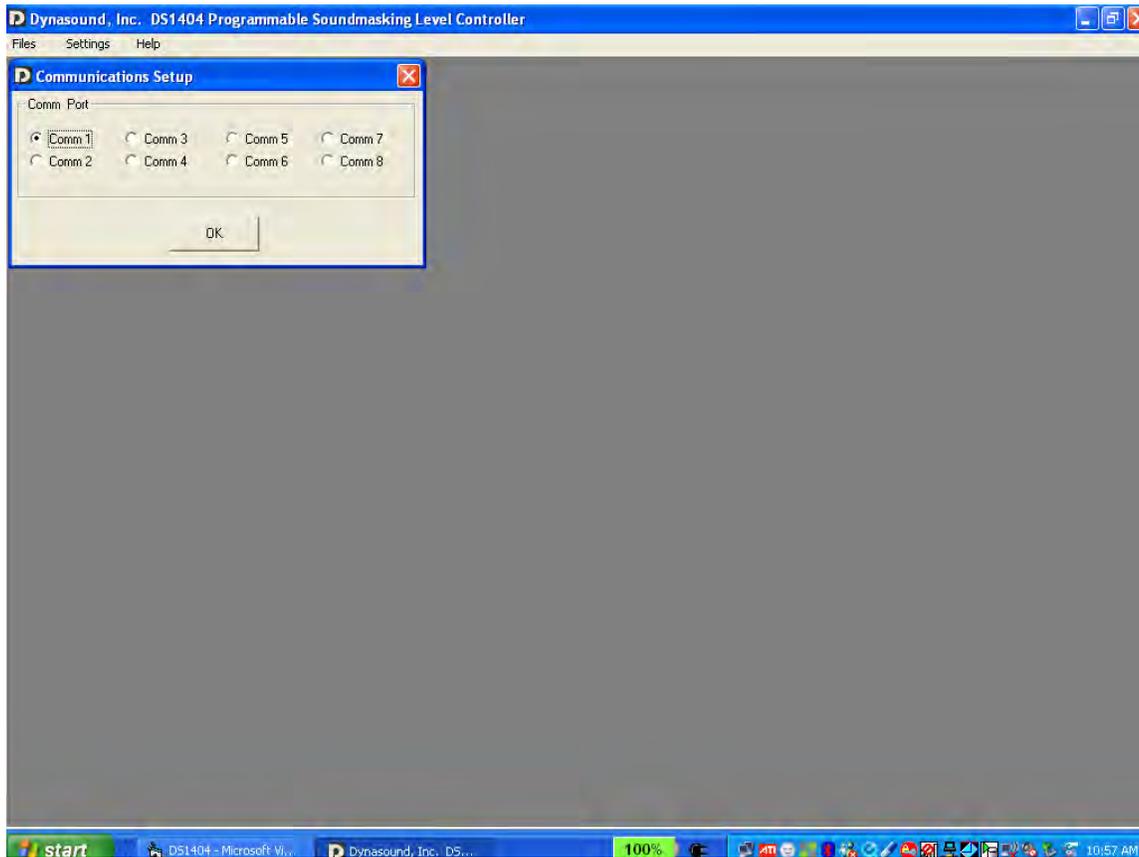
Establishing Communications with the DS1404

The DS1404 is factory configured to provide a standard Monday through Friday attenuation schedule without need for further configuration. See the section on “Specifications” for details of the provided schedule.

To create a custom attenuation schedule you must connect the DS1404 to your PC using the provided cable. The following steps describe connecting your PC to the DS1404 and using the provided software to create custom soundmasking schedules.

Start the DS1404 control software. After installing the software there will be a Dynasound section in your programs menu. Click the Start button, go to the “All Programs” list and navigate to the Dynasound menu. Select DS1404 and click to start the program.

When the program starts, use the menu to select “Settings > Communications”. the screen should appear as below. You must select the correct com port based on your PC. The PC and DS1404 cannot communicate if the correct port is not chosen.

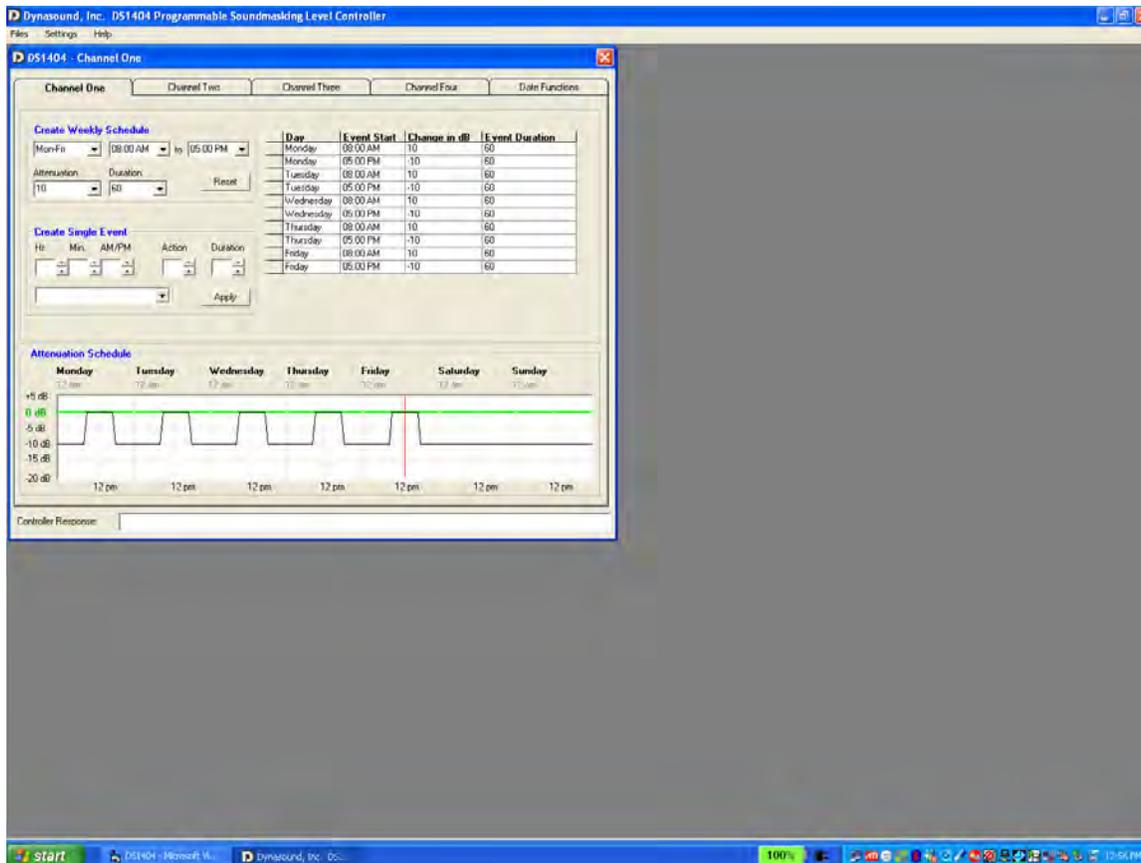


communication settings window

If you are not sure which port is used on your computer you may need to check Windows device manager or your USB adaptor software to determine the correct port setting.

Creating Attenuation Schedules

After selecting the correct port settings, use the main menu to select “ File > Connect”. The screen shown below should appear.



main configuration window - channel one shown

Communications from the DS1404 to the PC are shown near the bottom of this window labeled “Controller Response”. When this window appears, it is important to observe the controller response to see if a connection has been made. Each time this window is opened the PC based control software attempts to communicate with the DS1404. If, after a few seconds, the controller response still shows off-line status then close and reopen the window to initiate another connection attempt.

It is important to understand that when creating soundmasking schedules, that you are programming the amount of attenuation that will be introduced by the DS1404, not the actual final volume levels of the sound system. In other words, a setting of 15 would produce the most attenuation of the system (the least volume); a setting of 0 would introduce no attenuation (the most volume).

The DS1404 can be configured to provide from 0dB to 15 dB attenuation per channel and stores an attenuation value for each minute of the week. Weekly attenuation schedules are easily created with just a few clicks by using the “Create Weekly Schedule” feature of the control software.

Creating Attenuation Schedules - continued

For example, let's assume you need to create a soundmasking attenuation schedule for a company having typical Monday thru Friday 9am to 5pm hours. Let's also assume that you would like the soundmasking to lower by 10 decibels each night, taking one hour **duration** to transition from full volume (0 db attenuation) to 10 dB of attenuation.

In the "Create Weekly Schedule" portion of the window you are given options for **weekdays** (Mon-Fri, Mon-Sat, Mon-Sun.), **Start** and **End** times, **Attenuation** (0-15 dB) and **Duration** (0-120). For the above mentioned schedule you would select Mon-Fri, 8:00 AM to 5:00 PM, 10 dB attenuation and 60 (minutes) duration. 8:00 AM was chosen as a start time assuming that we wanted the soundmasking to be "ramped up" by 9:00 AM and the ramp-time or "Duration" was set to 60 minutes. The parameters must be separately configured for each of the four channels.

Note that each time any of these options are changed the weekly schedule is updated and displayed on the Weekly Schedule chart.

Schedules must be balanced in terms of attenuation increases and decreases. Using the options in the "Create Weekly Schedule" section insures that increases and decreases are balanced, as it creates matching events.

Modifying Weekly Schedules

While it's very simple to create a schedule that works for most situations, with just a few clicks, there will be situations that require a more complex schedule. For example, perhaps the weekly schedule is fine except that the company hours are shorter on Fridays. One can still create the weekly schedule and then modify an individual event by right-clicking the event and changing the required parameters. Other needs may be, for example, raising the soundmasking more slowly (longer duration) in the morning and faster ramp down (shorter duration) in the evening. As you can see there are endless variations.

The screenshot displays the 'DS1404 - Channel One' window. It features a 'Create Weekly Schedule' section with a table of events:

Day	Event Start	Change in dB	Event Duration
Monday	08:00 AM	10	60
Monday	05:00 PM	-10	60
Tuesday	08:00 AM	10	60
Tuesday	05:00 PM	-10	60
Wednesday			
Wednesday			
Thursday			
Thursday			
Friday			
Friday			

An 'Edit Event' dialog box is open, showing the 'Event Start' time being modified to 06:00 PM. The 'Attenuation Schedule' chart at the bottom shows a graph of attenuation levels over a 24-hour period, with a green line indicating the current schedule.

The example to the left shows the Ramp-down time being modified for every Tuesday evening.

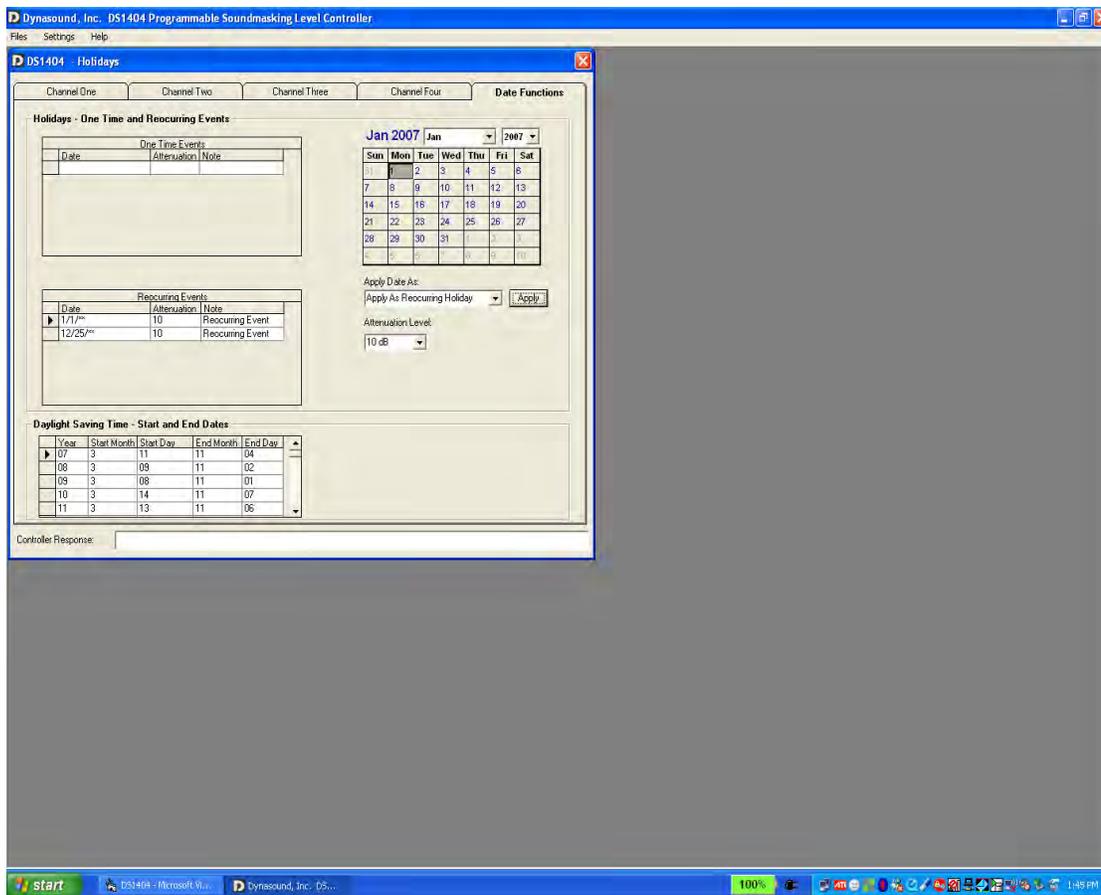
Creating Attenuation Schedules - continued

Keep in mind that you are always working on one-channel at a time, based on which tab you are viewing in the configuration window. Each tab is a channel specific schedule. The last tab is for date specific events that are applied to all channels.

The most flexible, and potentially confusing, way to create schedules is to use the “Create Single Event” portion of the window. This feature can create “single events” for individual or multiple days but does not create a “matching” or “counter-acting” event. In this mode the user is responsible for balancing the attenuation increases and decreases over the course of a week. While its seldom the best method to create an entire weekly schedule, this feature can be used to insert “ups” and “downs” inside a workday for lunch periods or breaks.

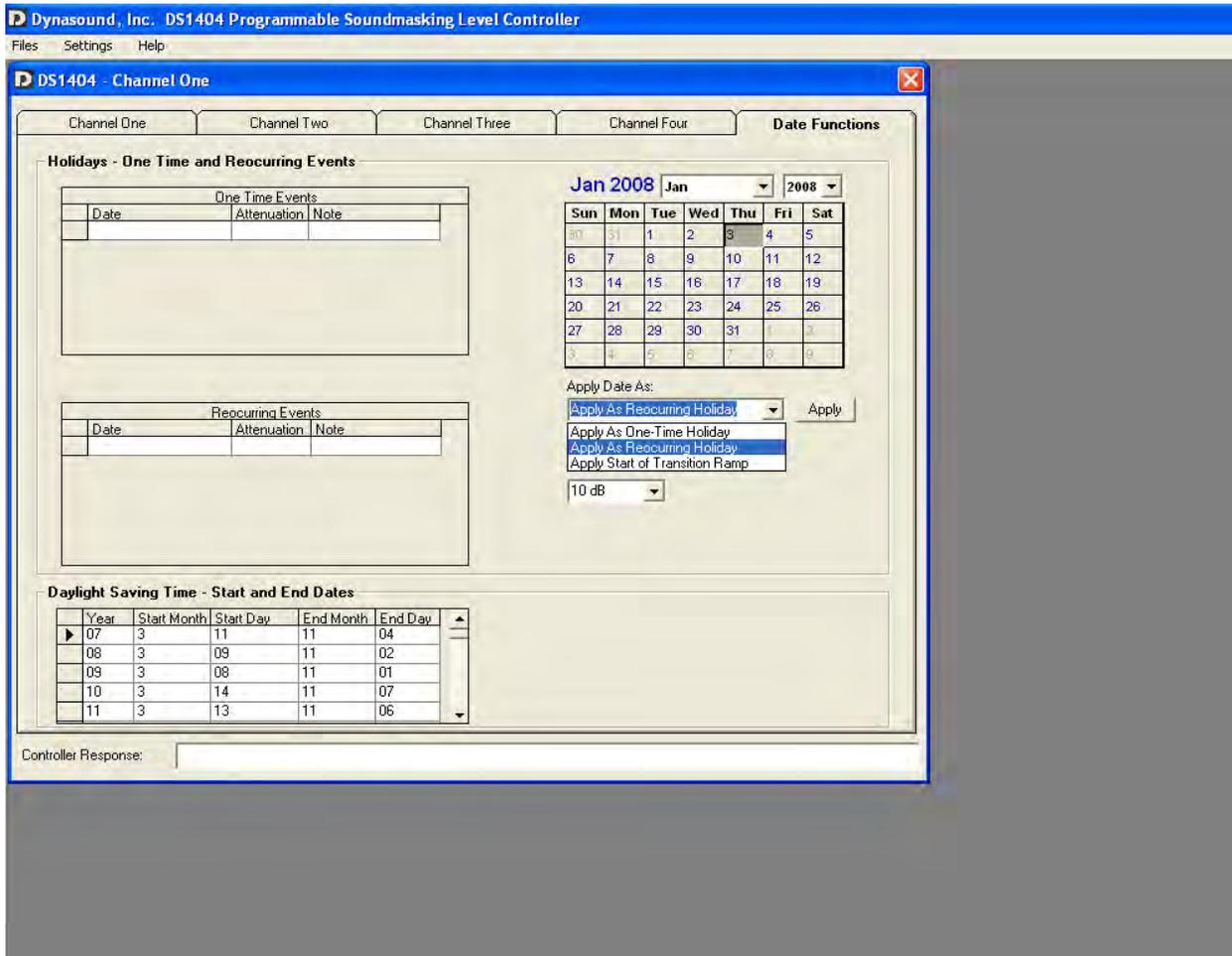
Creating Date Events

In addition to storing a routine weekly schedule for each channel the DS1404 can be programmed for holiday or non working days. Date “events” such as Holidays may be programmed as one-time or reoccurring events.



Creating Date Events - continued

To create a One-Time Event, select “Apply as One-Time Holiday” on the list box as shown. Next select the desired date on the calendar. Select the amount of attenuation for the one time event and click Apply. The information will be added to the One Time Events list.

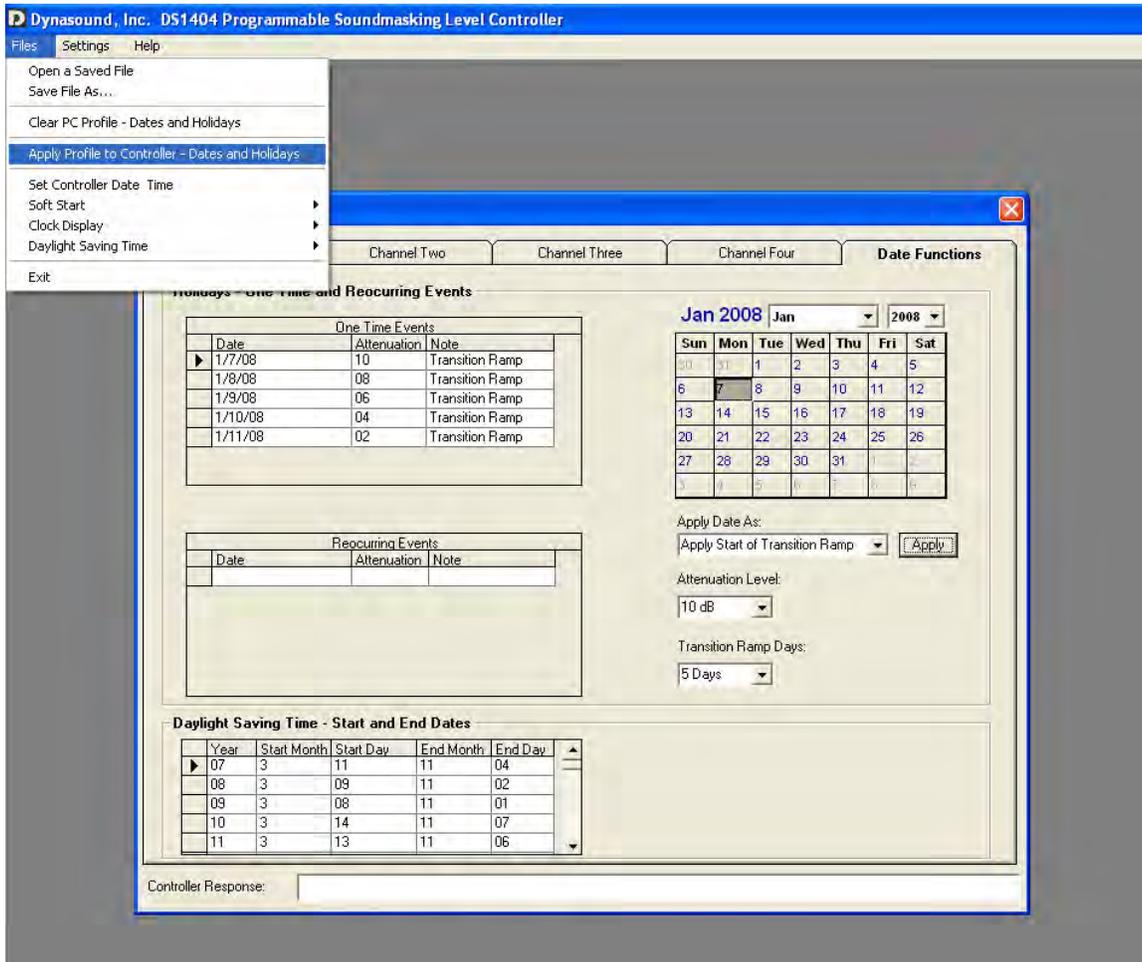


The process to create a Reoccurring Event is very similiar excpet that “Apply as Reoccurring Holiday is selected instead of One Time Holiday. The reoccurring event will be added to the Reoccurring Events table.

One time or reoccurring events can be removed by clicking on the row pointer of the line you want to remove and pressing the PC’s delete key.

Creating a Transition Schedule

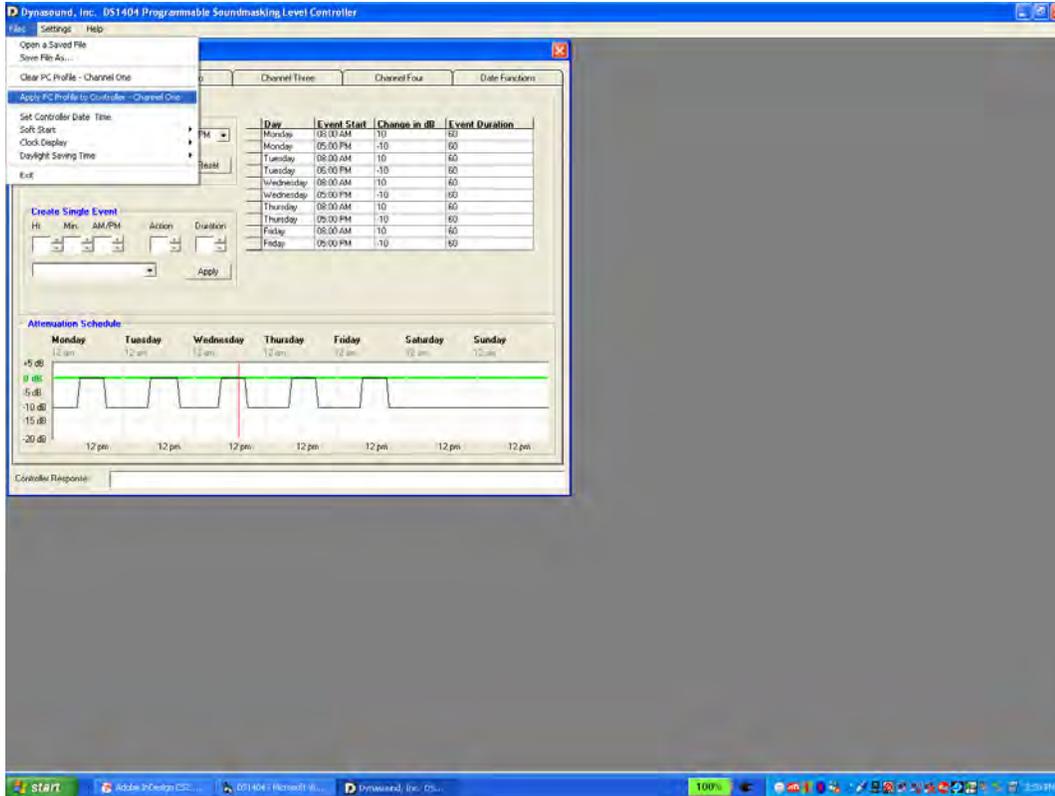
A Transition schedule is used to slowly increment a newly installed soundmasking system into an existing facility. You can choose a 5, 10, or 20 day period.



The process to create a transition schedule, basically creates a series of One-Time Events in order to gradually transition the soundmasking. One-Time Holidays cannot be scheduled on the same day as a Transition Schedule date.

Downloading Weekly Schedules to the DS1404

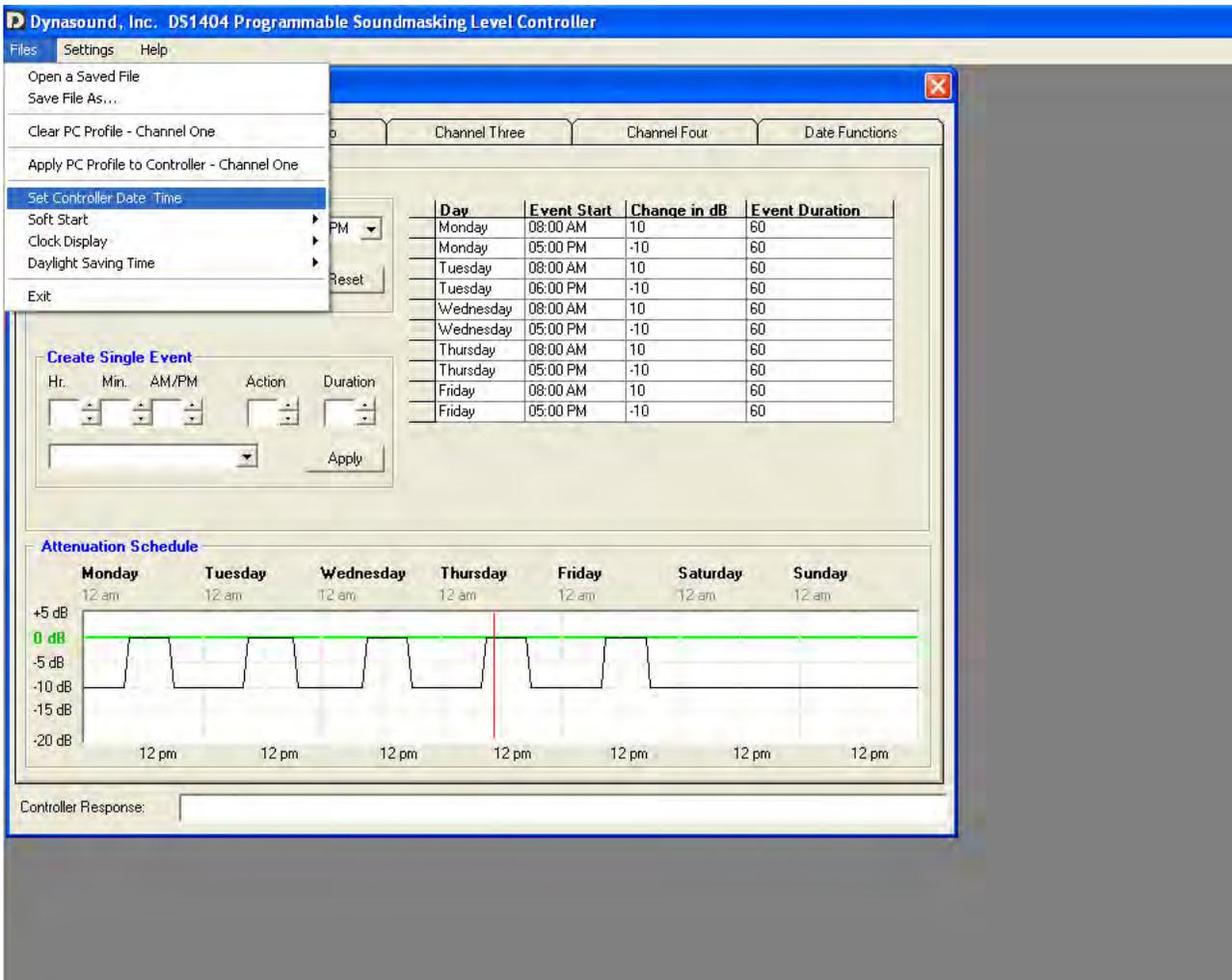
Any change to a channels attenuation schedule requires a complete erasure, download and memory verification for that channel. While this process is very easy, **it does take several minutes and cannot be interrupted**. To download a schedule into a particular channel, be on the selected channel's tab and click Download Schedule to Controller as shown below. General progress status will be displayed in the controller response area. A more detailed progress status may be observed on the LCD of the DS1404.



Downloading Date Events to the DS1404

Any change to date events requires a complete erasure and download. While this process is very easy, it does take several minutes and cannot be interrupted. To download date or holiday information into the DS1404, have selected the Date Events tab and click the menu as shown above. General progress status will be displayed in the controller response area. A more detailed progress status may be observed on the LCD of the DS1404.

Setting Current Date and Time

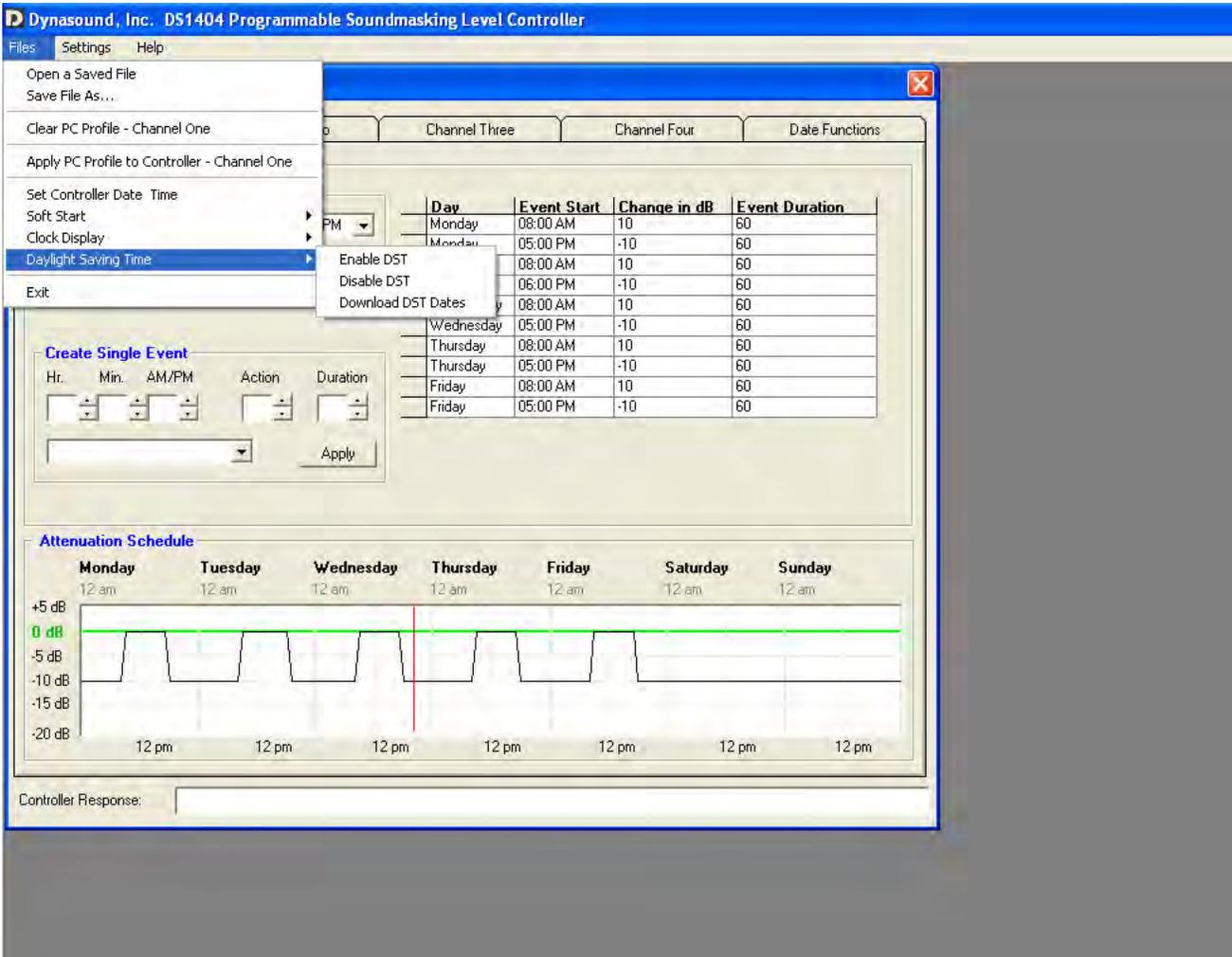


While communicating with the DS1404, you may sync the time on the DS1404 Controller to that of your PC by selecting the menu item shown above. You will receive a confirmation response back from the controller, verifying the change.

Setting Current Time with Front Panel Buttons

The time of day may be set using the front panel buttons, allowing minor adjustments without need for a PC connection. The "Mode" button toggles between Hours and Minutes and the Set button increments the respective value. Date changes must be made with a PC connection using the DS1404 software. After setting the hours or minutes, the Mode button must be pressed until the display returns to normal operating mode. In normal operating mode, the date, time and attenuation levels are displayed. The DS1404 cannot operate if left in "Set Hours" or "Set Minutes" mode.

Setting Daylight Saving Time Option



The DS1404 can adjust for Daylight Saving Time if properly configured. While communicating with the DS404, select your preference as shown above. This parameter will be automatically saved to the DS1404. You should receive a confirmation response from the DS1404.

The Download DST Dates option should not be required unless the current DST starting and ending dates are changed through legislation, or the current date is beyond 2026. The factory downloaded dates are shown on the Date Functions tab of the DS1404 software and can be modified and downloaded into the DS1404 if a change or update is needed.

Setting Soft-Start Option

The screenshot shows the 'Settings' menu with 'Soft Start' selected. The 'Enable Soft Start' option is highlighted. Below the menu is a table of events and an attenuation schedule graph.

	Event Start	Change in dB	Event Duration
Tuesday	08:00 AM	10	60
Tuesday	05:00 PM	-10	60
Wednesday	08:00 AM	10	60
Wednesday	05:00 PM	-10	60
Thursday	08:00 AM	10	60
Thursday	05:00 PM	-10	60
Friday	08:00 AM	10	60
Friday	05:00 PM	-10	60

The 'Attenuation Schedule' graph shows a baseline at 0 dB. It features a series of trapezoidal pulses that drop to -10 dB and then back up to 0 dB, occurring at 12:00 AM, 12:00 PM, and 12:00 AM on Tuesday, Wednesday, Thursday, and Friday. The y-axis ranges from +5 dB to -20 dB, and the x-axis shows days from Monday to Sunday.

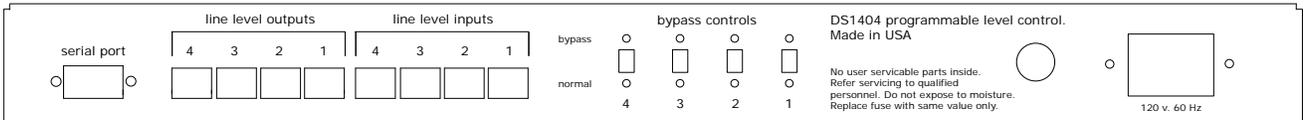
The DS1404 can ease system starts by gradually increasing the soundmasking over a 15 to 20 second period. If this feature is activated, upon power up, the DS1404 will wait 10 seconds to let other system amplifiers go through a power up sequence. The DS1404 then slowly ramps up the soundmasking. While communicating with the DS1404, select your preference as shown above. This parameter will be automatically saved to non-volatile memory in the DS1404. You should receive a confirmation response from the DS1404.

If the Soft Start feature is activated at night, or while any given channel is attenuated, the DS1404 will soft start from 20 dB attenuation and slowly ramp to the correct level based on the programmed schedule.

Specifications



front panel



rear panel

Dimensions: 18" wide , 1.75" tall (one rack space) and 8" deep

Weight: 8 lbs.

Channels: 4 channel

Power Consumption: 0.2 Amps

PC Interface: RS232 Com Port 9 pin

Default Schedule:	Monday	07:00 AM	10dB increase 60 minute duration
	Monday	05:00 PM	10dB decrease 60 minute duration
	Tuesday	07:00 AM	10dB increase 60 minute duration
	Tuesday	05:00 PM	10dB decrease 60 minute duration
	Wednesday	07:00 AM	10dB increase 60 minute duration
	Wednesday	05:00 PM	10dB decrease 60 minute duration
	Thursday	07:00 AM	10dB increase 60 minute duration
	Thursday	05:00 PM	10dB decrease 60 minute duration
	Friday	07:00 AM	10dB increase 60 minute duration
	Friday	05:00 PM	10dB decrease 60 minute duration

Warranty & Service

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.

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