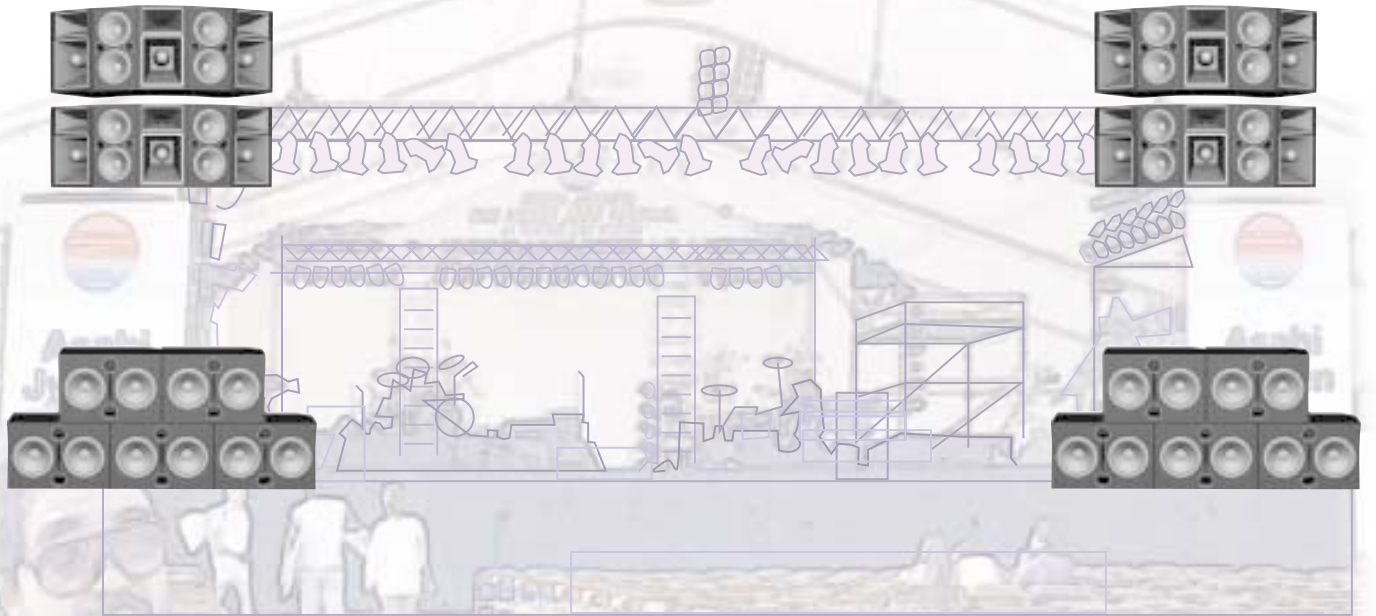
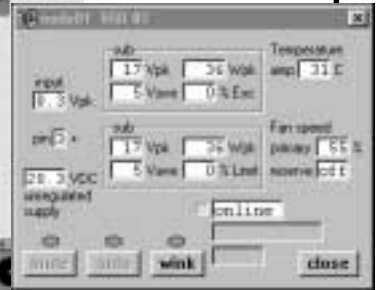
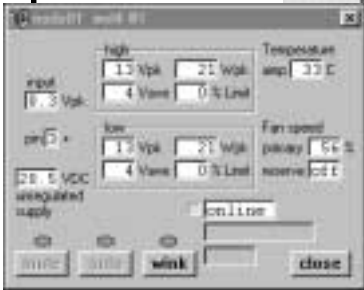
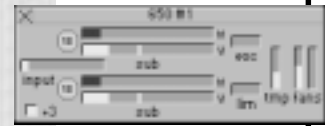
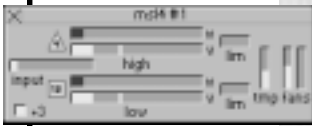
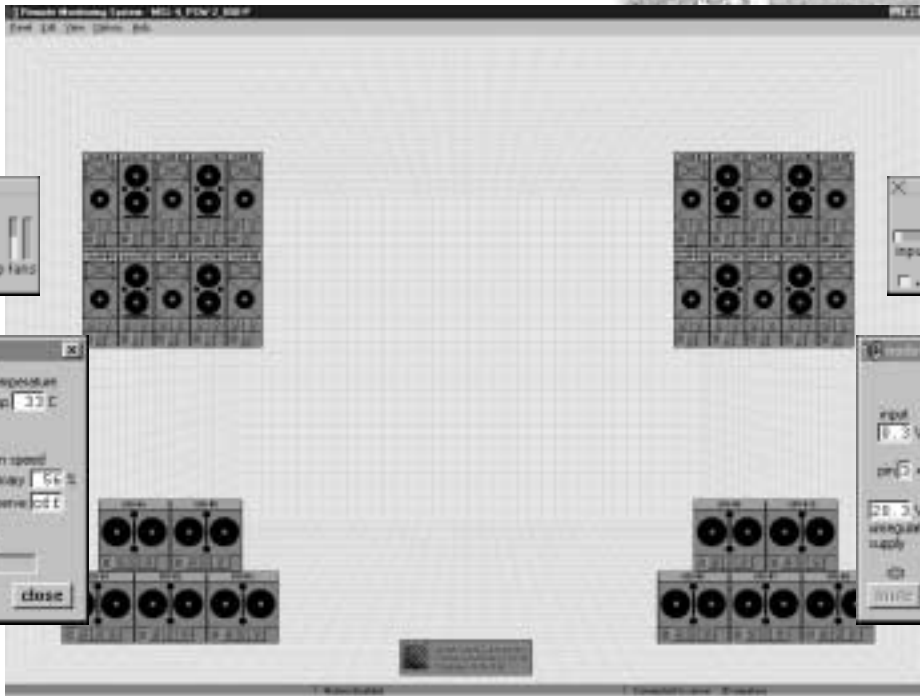




Remote Monitoring System

Version 3.5





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RMS™ Version 3.5

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FTR Network Repeater Operating Instructions	05.033075.12 Rev A	

This manual uses text formatting conventions that follow this format:

Standard Text	Times New Roman, Times New Roman Bold
<i>Computer Responses</i>	<i>Times New Roman Italic</i>
Menu, Button and Icon Selections	Arial Narrow
User Keyboard Entries	Arial Narrow Bold



M.S.P.N. 05.033.075.14 Rev. A



Remote Monitoring System User's Guide



RMS™ User's Guide

May 31, 2000

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Description and Overview of RMS

Related Documentation

For background information on RMS please review the *RMS Q&A* (M.S. P/N 01.033.072.01 A), *RMS Data-sheet* (M.S. P/N 04.033.073.01 A), *Self-Powered Loudspeaker Installation & Wiring Guide* (M.S. P/N 05.033.075.07 Rev 3.5), *RMS License Agreement* (M.S. P/N 05.033.075.10 Rev. 3.5) *RMS™ Host Computer Requirements List* (M.S. P/N 05.033.075.13 Rev 3.5) *Host Computer Software Installation* (M.S. P/N 05.033.075.02 Rev. 3.5)

The Software Package:

Included in this release is:

- Echelon LonManager Dynamic Data Exchange (DDE) server.
- Echelon LonMaker Network Manager
- Remote Monitoring System Program and Database for Windows 95/98

What is RMS?

Remote Monitoring System displays critical operation data from Meyer Self-Powered Loudspeakers in a graphical Windows program. The speaker data is transported across an Echelon LonWorks based twisted pair network.

The host program displays input and output voltages, polarity information, amplifier power and limiting information, driver conditions, as well as the amplifier temperature and fan speeds of each self-powered RMS speaker in the network system. In addition, RMS can be configured to mute or solo speakers, making it a perfect tool for system engineers and sound mixers.

How many Meyer Self-Powered Loudspeakers can be connected to an RMS Network?

RMS version 3.5 for Windows 95/98 can monitor up to 125 speakers on a single channel network. However, systems with more than 62 speakers or more than 1500 feet of cable require a repeater, a hardware device available from Meyer Sound. A single repeater will allow up to three branches of 1500' and 62 speakers each, provided the total number of speakers does not exceed 125.

For more information on wiring please refer to the *RMS Self-Powered Loudspeaker Installation and Wiring Guide* (M.S. P/N. 05.033.075.07 Rev. 3.5). For more information on a repeater contact Meyer Sound Technical Support.

RMS Systems can be configured using routers to increase capacity up to 230 speakers on multi-channel systems. Routers can also be used to transmit network data across Ethernet lines. For information on these advanced capabilities contact Meyer Sound Technical Support.

What hardware is required to run RMS?

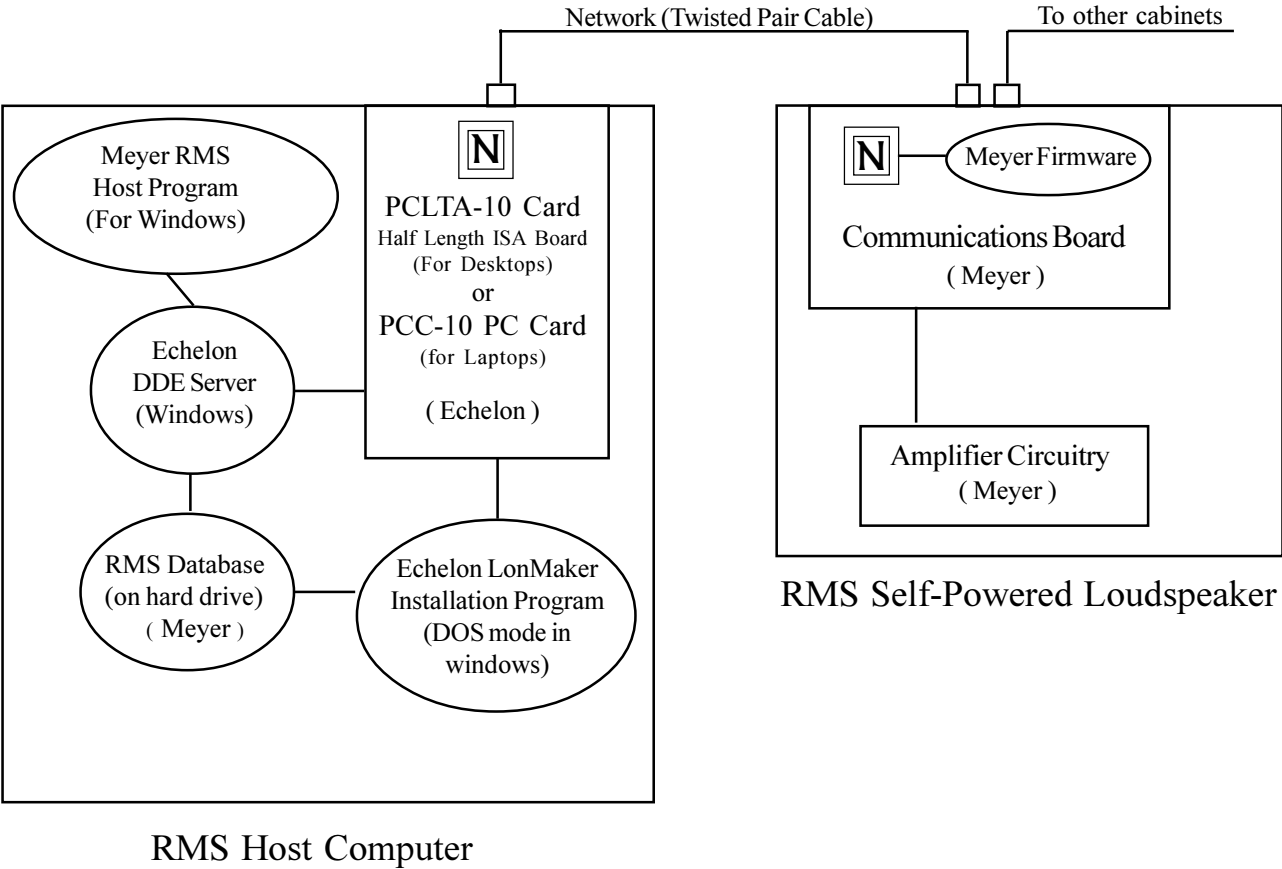
While RMS will run on desktop or portable Windows 95/98 systems with any pentium processor, we strongly recommend a Pentium system with a minimum CPU speed of 266 MHz and at least 32 MB of memory. A screen resolution of 1024x768 pixels is highly recommended for systems with a large number of speakers, however, 800x600 pixels is sufficient. For more information consult the Meyer Sound document *RMS Host Computer Requirements List* (M.S. P/N 05.033.075.13 Rev 3.5).

Can I run other programs on my RMS host computer?

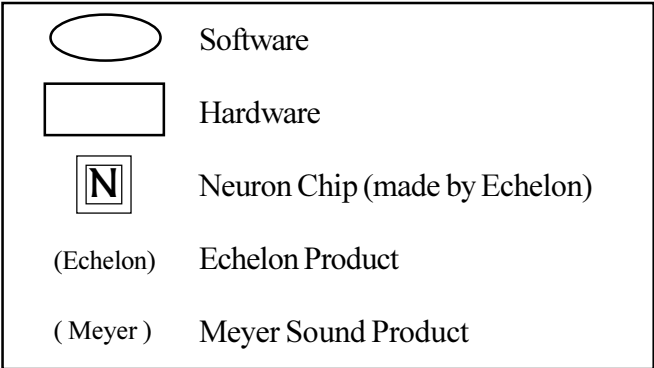
RMS consists of a series of complex hardware and software interactions. Installing or using other hardware or software on an RMS host computer may result in memory warnings and increased latencies. We recommend running RMS on a dedicated host computer free from other applications.

RMS Software and Hardware Interaction

When approaching RMS for the first time, it is useful to have a general understanding of how the different software and hardware components of a host computer and RMS system interact. Pictured below is a diagram which depicts these interactions.



Key:



Running the RMS Program

Starting RMS

There are several ways to start RMS in Windows. If you successfully completed the Host computer installation, or received a preconfigured host computer from Meyer Sound, RMS should begin on start up when the computer is powered on. Otherwise, double click the RMS icon on the desktop or open the RMS program in the Meyer Sound Laboratories folder.

When you start RMS for the first time, an untitled panel and page will be displayed, as shown below:



If your RMS system was installed and configured at the factory, a panel will have already been set up for you. You will see the panel load and loudspeaker icons displayed on the page. RMS remembers the last panel that was opened and reloads that panel the next time it is started.

The Menu Bar

There are five pull-down menus on the menu bar (just below the program title). These five menus control most of the major functions of RMS. They are: Panel, Add, View, Options, and Help.

Panels and Pages

A panel consists of one to twenty pages of icons and other views of loudspeaker information. Each page can contain a single speaker or a group of speakers. Panels can be saved and loaded to and from your hard drive. Panels allow you to create as many different speaker-system configurations as you like.

The multi-page interface is controlled with tabs. The tabs are used to select a page to be displayed or to add loudspeakers to. The tabs also display the page name and status for that page. See the *Multi-Page Interface* section on page 1-11 for more information on panel pages (adding, deleting, renaming, etc).

The Panel Menu

When you select Panel in the menu bar, or hold down the **Alt key** and press **P**, the Panel pull-down menu will appear. This menu consists of the following options:

New...	Creates a new panel.
Open...	Opens an existing panel.
Save	Saves the panel currently open under its original name.
Save As...	Saves the currently open panel under a different name.
Add Page...	Adds a new page to the current panel.
Delete Page...	Deletes the currently displayed page from a panel.
Rename Page...	Renames the currently displayed page on a panel.
Exit	Quits the RMS and prompts the user to save any changes made to the open panel.

Adding Loudspeakers to a panel

Before loudspeakers can be monitored they must be installed on the network as described in the *RMS Self-Powered Loudspeaker Installation and Wiring Guide* contained in your RMS documentation. If your RMS system was installed and configured at the factory, the loudspeaker installation step will have already been done for you.

When adding speakers to a panel you will need to refer to the list of network installed speakers, serial numbers, and device names you created during loudspeaker installation. Refer to the end of this guide, page 1-27 for a sample *RMS Configuration Data Sheet*.

Monitoring begins immediately once a loudspeaker is added to the panel as long as it has been installed on the network and is physically connected to the network interface card in the host computer by a twisted pair wire.

The Add menu allows you to add loudspeakers to your panel. When you select Add in the menu bar you will see a list of all of the loudspeakers supported by RMS.

Add Speaker Dialog

To add a loudspeaker to the panel, first select Add in the menu bar then click-on the type of loudspeaker you wish to add. This will launch the Add Speaker Dialog pictured below:

The screenshot shows a dialog box titled "Add speaker". It has a blue title bar with a close button. The dialog is divided into several sections. On the left, there are two text input fields: "Device Name" containing "spk03" and "Speaker Title" containing "MSL-4 #3". To the right of the "Device Name" field is a text box with the instruction: "Enter the device name assigned to this speaker when it was installed using the LonMaker Network Management Program." To the right of the "Speaker Title" field is a text box with the instruction: "Enter up to 12 characters for a speaker title." On the far right is a list box titled "Used Device Names" which contains two entries: "spk01" and "spk02". At the bottom of the dialog are two buttons: "OK" and "Cancel".

In the **Device Name** field enter the unique name that was assigned to this loudspeaker when it was installed on the network using the LonMaker program. The Device Name field will be primed with the last device name that was entered with an incremental ending number (if the device name ends with a number).

In the **Speaker Title** field enter a title name for the loudspeaker. The Speaker Title field will be primed with a name based on the type of loudspeaker you selected from the Add menu with an appended number representing the count of that type of loudspeaker on the current panel.

The Used Device Names list shows all of the device names that have been added to the current panel.

Adding Loudspeakers to a panel

You may enter any name in the Title Name field provided it is 12 letters or less in length and contains only letters, numbers, spaces and dashes. You may use descriptive names. For example, if you are adding an MTS-4 that you plan to use for side-fill on the left side of the stage, you might use the title 'MTSLftFill1'.

When you have entered the device name and title, select the OK button to add the speaker to the panel. This will clear the dialog and place the new loudspeaker on the current page of the panel.

When you have multiple pages defined for a panel, new loudspeakers will be added to the currently selected page as shown by the tabs at the top of the page.

Adding Meter and Text Views

To open a meter view of the speaker, double click the speaker icon. To open a text view of the speaker, double click the icon again. For more information on changing loudspeaker views see *Switching Between Display Views* later in this guide.

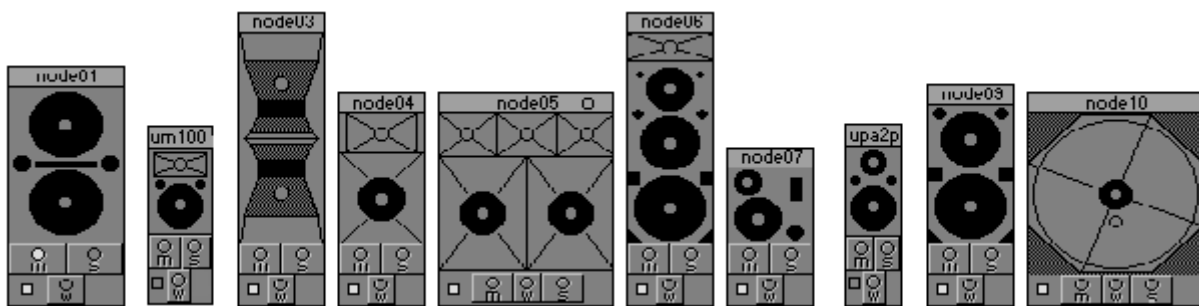
Renaming a Panel Page

To rename the current page that you have just added a loudspeaker to, click on Panel on the menu bar and then select Rename Page. A dialog will be presented for you to enter a name for the page. You can enter any name up to 10 characters in length.

Saving Your Panel

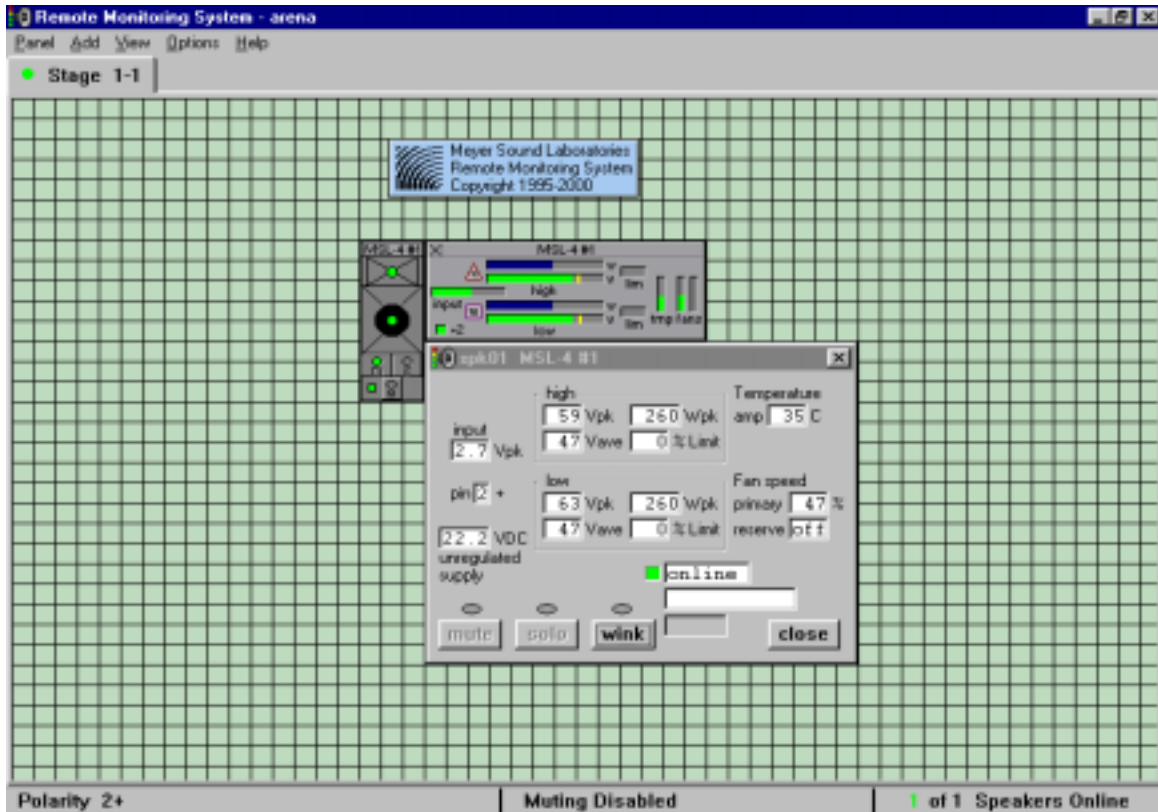
Now that you have added a speaker to the panel and renamed the page, save your panel by clicking on Panel on the menu bar and then selecting Save. You will be asked to choose a directory and name for your panel. We strongly suggest you use the `c:\tnode` directory, which will be selected by default. Make sure you remember where you put your panel and what you named it so that you can recall it later on. After saving, the name of your panel will appear at the top of the screen next to the RMS title. Unsaved panels that have had changes made to them will be depicted with an asterisk appended to the name on the window title bar.

At this point, if the speaker is hooked up and properly configured, the icon's online indicator will be green. You are now monitoring the speaker. If the speaker is not attached to the network then the online indicator will be red. The window on the next page displays an icon for a MSL-4. If you installed another speaker type you will see a different icon.



Sample Icon Views

Adding Loudspeakers to a Panel



The Status Bar

The RMS Status bar is displayed at the bottom of the main window. You can toggle the Status Bar on and off by clicking Options and then clicking Status Bar.

The number at the far left of the status bar indicates input polarity of all speakers on the panel. If all of your input polarity switches are set to pin 2 hot, then 2+ will appear here. If all of your input polarity switches are set to pin 3 hot then 3+ will appear instead. Panels that contain pin 2 and pin 3 hot speakers will display 2+3+ on the menu bar.

The right side of the status bar shows the number of loudspeakers that are online and communicating with the host program and the total number of loudspeakers on the panel. The middle of the status bar shows the selected muting options.

Deleting Loudspeakers

To remove a loudspeaker from a panel, place the mouse cursor over the loudspeaker you wish to remove and then press the right mouse button. A menu will appear over the loudspeaker. Select Delete from this menu and confirmation dialog will appear. To delete the selected loudspeaker select OK, to return to the panel without deleting select No.

Renaming a Loudspeaker

To rename a loudspeaker, place the mouse cursor over the loudspeaker you want to rename and press the right mouse button. Select Rename from the menu and a rename dialog will appear. Enter a new name for the loudspeaker and then select OK, or select Cancel to return to the panel without renaming the loudspeaker.

Panel Functions

Opening an Existing Panel (Ctrl+O)

Choose Open from the Panel menu (Panel>Open) to load an existing panel file into the RMS display. If you have made changes to your panel since you last saved it you will be asked if you want to save your panel. If you want to keep your changes select Yes, if you want to discard your changes select No.

After the Open file selector dialog is launched, select the file name of the panel that you wish to load. Select OK or press <Enter> to load the file. This will reload the last saved version of the panel. Click Cancel or press the **Esc key** to cancel the file load and return to the existing panel.

Note: If you have made changes to a panel and want to restore the panel to it's original state you can use the Open panel function to do so. Enter No when you are asked to save changes to the loaded panel and then reload the panel by selected it in the Open file selector dialog box.

Starting a New Panel (Ctrl+N)

Choose New from the Panel menu (Panel>New) to start a new panel. If you have made changes to your panel since you last saved it you will be asked if you want to save your panel. If you want to keep your changes select Yes, if you want to discard your changes select No.

Saving a Panel to a New File

Choose Save As from the Panel menu (Panel>Save As) to save the currently loaded panel to a new file. After the Save As file selector dialog is launched, select a folder to store the new file in and type in a new name. Select OK or press <Enter> to save the panel in the new file. Click Cancel or press the **Esc key** to cancel the file Save As and return to the existing panel. After you save the panel to the new file the new name will be displayed on the title bar of the RMS main screen. If you select a file that already exists you will be asked if you want to replace it. Click Yes to replace the existing file. Click No to cancel the save and return to the file selector dialog

The View Menu

When you select View in the menu bar, or hold down the **Alt key** and press **V**, the View pull-down menu will appear. Select the option for the initial view that you want to appear when you add a loudspeaker to the panel. This menu consists of the following options:

Small Icons	when a speaker is added it will appear as a small icon.
Icons	when a speaker is added it will appear as an icon.
Meters	when a speaker is added it will appear as a meter view.
Text	when a speaker is added it will appear as a text view

Note: This setting does not affect speakers already on the panel. It only affects the initial view of loudspeakers added after the setting is changed. The default for this setting is Icon view.

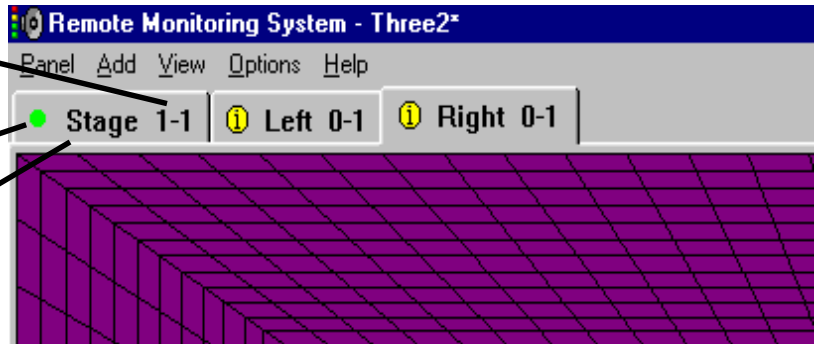
Multi-Page Interface

The Multi-Page Interface is new for Version 3.5 of RMS. A panel setup can now span across multiple pages. Up to 20 pages can be added to a panel setup. The new interface uses a tab control at the top of the page to select which page to display. The name of the page as well as page level status of all of the speakers on that page are displayed on the tabs. The tabs also indicate the number of loudspeakers on the page as well as the number that are currently online.

**Number of loudspeakers
Online and on the page**

Page Level Status

Page Name



Page Level Loudspeaker Status

The status for all of the loudspeakers on a page is propagated to the tab for that page. If any loudspeaker is limiting or is displaying a warning icon, that status will be displayed on the tab for that page. A green circle on the tab indicates all the loudspeakers on that page are online and functioning correctly.

Navigating Through Pages on a Panel

There are several ways to navigate through the pages on a panel. Click on the tab for a page to select the page for display or use the keyboard as described below:

tab key Pressing the tab key will scroll through each of the pages in order. Holding the shift key and pressing the tab key will scroll through the pages in reverse order.

Numerical Keys Pressing the numeral keys will select pages 1 to 10 (left to right).
1,2,3...0

Multi-Page Interface

Add a Page (Ctrl+A)

Choose Add Page from the Panel menu (Panel>Add Page) to add a new page to the current panel. Type in a name for the new page in the Enter Page Name dialog. The name may be up to 10 characters in length. Select OK or press **<Enter>** to create the new page. This will add a blank page to the panel. Click Cancel or press the **Esc key** to cancel the Add Page and return to the last page displayed. To add loudspeakers to the new page select a speaker type from the Add menu and proceed as described in the *Adding Loudspeakers to a Panel* section.

Delete a Page (Ctrl+D)

Choose Delete Page from the Panel menu (Panel>Delete Page) to delete the currently displayed page. A dialog will be presented asking you to confirm the delete operation. Select OK to delete the current page. Click Cancel or press the **Esc key** to cancel the delete operation.

Important! All of the loudspeakers on the current page will be deleted also! The delete operation cannot be reversed! Although, if the panel has not been saved since a Delete Page operation, the page can be restored by reloading the panel using the (Panel>Open) menu function and selecting No when prompted to Save changes to the panel. Then, selecting the last saved copy of the panel will restore the panel from that point.

Rename a Page (Ctrl+R)

Choose Rename Page from the Panel menu (Panel>Rename Page) to rename the currently displayed page. Type in a name for the new page in the Enter Page Name dialog. The name may be up to 10 characters in length. Select OK or press **<Enter>** to rename the new page. The new name will be displayed on the tab for that page. Click Cancel or press the **Esc key** to cancel the Rename Page.

Loudspeaker Views

Switching Between Display Views

Each loudspeaker on a panel can show up to 4 different views of loudspeaker data.

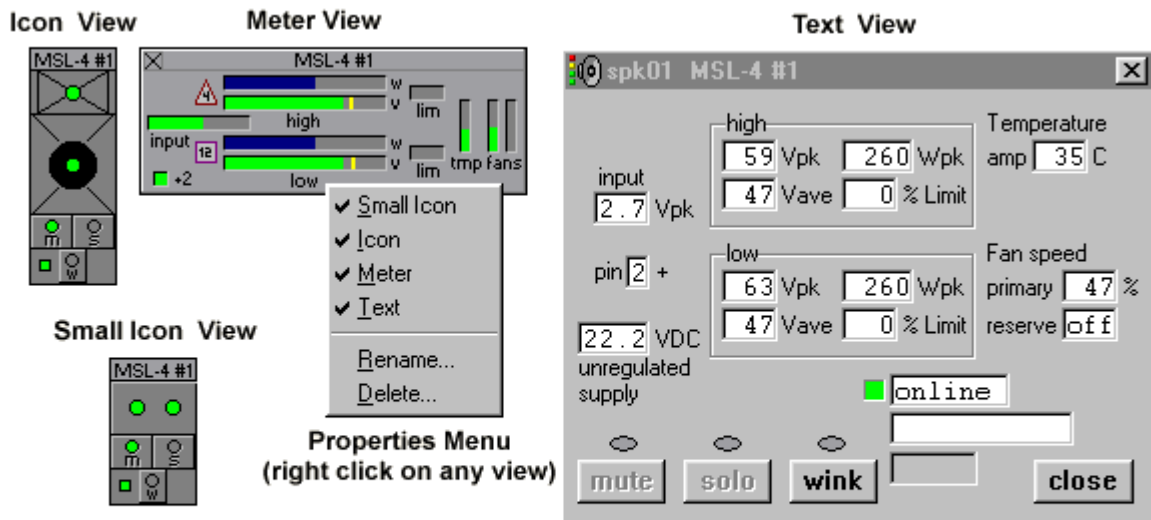
The Loudspeaker Properties menu

Place the mouse cursor over one of the speaker icons and press the right mouse button. A properties menu will appear with six options: Small Icon, Icon, Meter, Text, Rename, and Delete. Clicking on Rename will allow you to change the title of the selected loudspeaker. Clicking on Delete will remove the loudspeaker from the panel.

Next to the word Icon is a check mark. This check indicates the currently displayed style. Select the Meter option. A meter view will appear and the menu will disappear. Right click the meter view and then select Text from the menu. A text view will appear displaying numeric information for the selected loudspeaker. Right click on the text view and select Small Icon from the menu. A small icon will appear in the window.

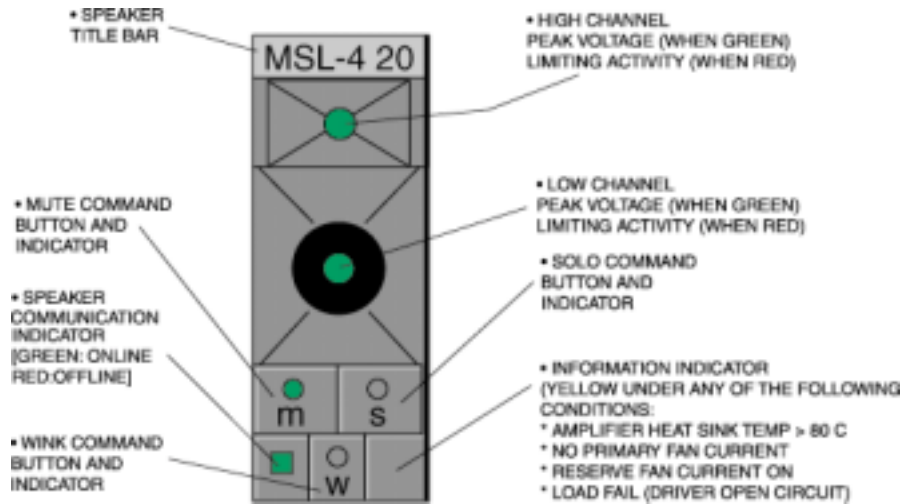
Right clicking on any of the display styles will bring up the properties menu. Double clicking on the Icon view with the left mouse button will bring up the Meter view. Double clicking on the Meter view will bring up the Text view. To bring up all three displays quickly you can triple click on a speaker icon.

At this point you should see all of these display styles on your panel:



Loudspeaker Views

The Icon View



The Icon Display

Icon View Reference

Speaker Title	The name you assigned to the speaker.
Amplifier Channel Status	The amplifier channel corresponding to the driver pictured on the Icon. The color codes are as follows: Green: Amplifier voltage present. Gray: No amplifier voltage present. Red: Channellimiting. Yellow: Voltage present without power: Open driver circuit. Orange: Excursion Indication
Mute Button and Indicator	Clicking on this button will mute the speaker provided you have enabled muting. (Green = unmuted, Red = muted).
Solo Button and Indicator	When muting is enabled, clicking on this button will unmute the loudspeaker and mute all other speakers. The indicator will be yellow when the speaker has been selected for solo operation.
Wink Button and Indicator	Clicking on the wink button will light a green LED labeled “Wink” on the RMS user panel of the loudspeaker. This can be used to identify the loudspeaker corresponding to the icon on the screen. The indicator will show green when wink is enabled.

Loudspeaker Views

Information Indicator 

Speaker Icons will display a yellow warning indicator if any of the following conditions are met:

Amplifier Heat Sink > 70 degrees C.

No Primary Fan Current.

Primary Fan Current > 97%.

Reserve Fan On.

Driver Open Circuit.

Driver Short Circuit.

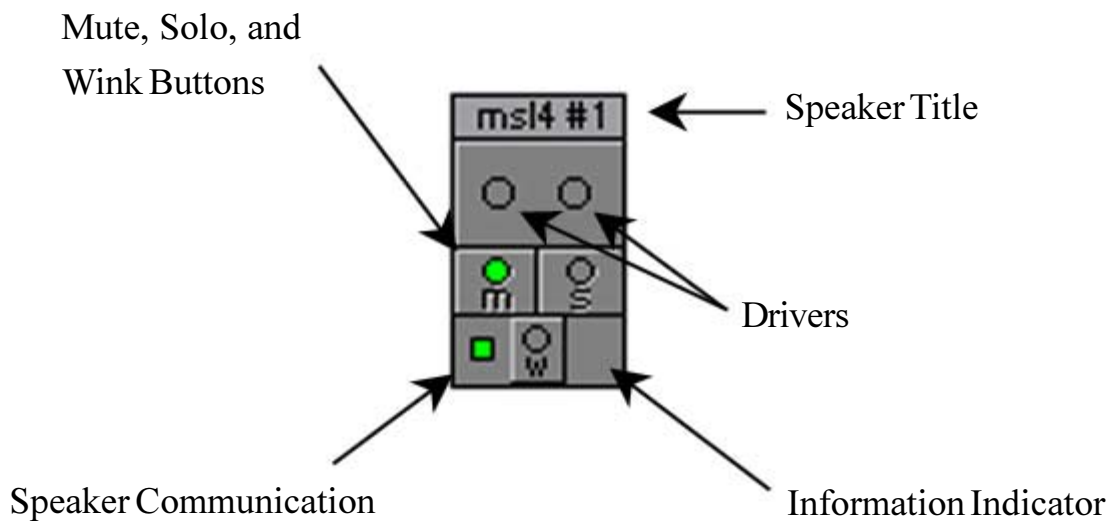
Loudspeaker Offline (including speakers not powered on).

Speaker Communication

Green indicates that the loudspeaker is online. Red indicates that the host computer is not receiving information from the loudspeaker.

The Small Icon View

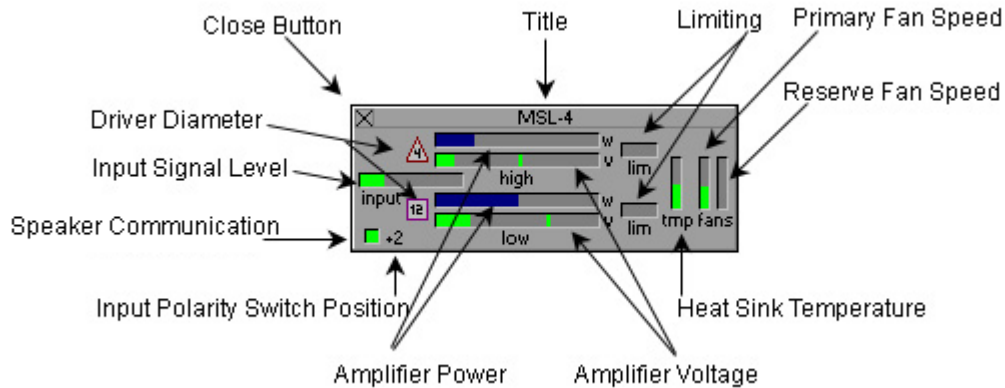
The small icon view is similar to the standard icon view, except that it is smaller and does not reflect the physical properties of the loudspeaker. All of the loudspeakers have the same icon for this view.



For more information on the small icon view display, refer to the reference for *The Icon View*.

Loudspeaker Views

The Meter View



Meter View Reference

Close Button

Clicking on this button will close the Meter view.

Input Signal Level

This meter bar displays the peak voltage of the input signal. This bar is color coded for these conditions:

Green - input signal is below 8 volts peak.

Yellow - input signal is between 8 and 9 volts peak.

Red - input signal is above 9 volts peak.

Speaker Communication

Indicates whether or not the loudspeaker is communicating with the host computer (Green = online, Red = offline).

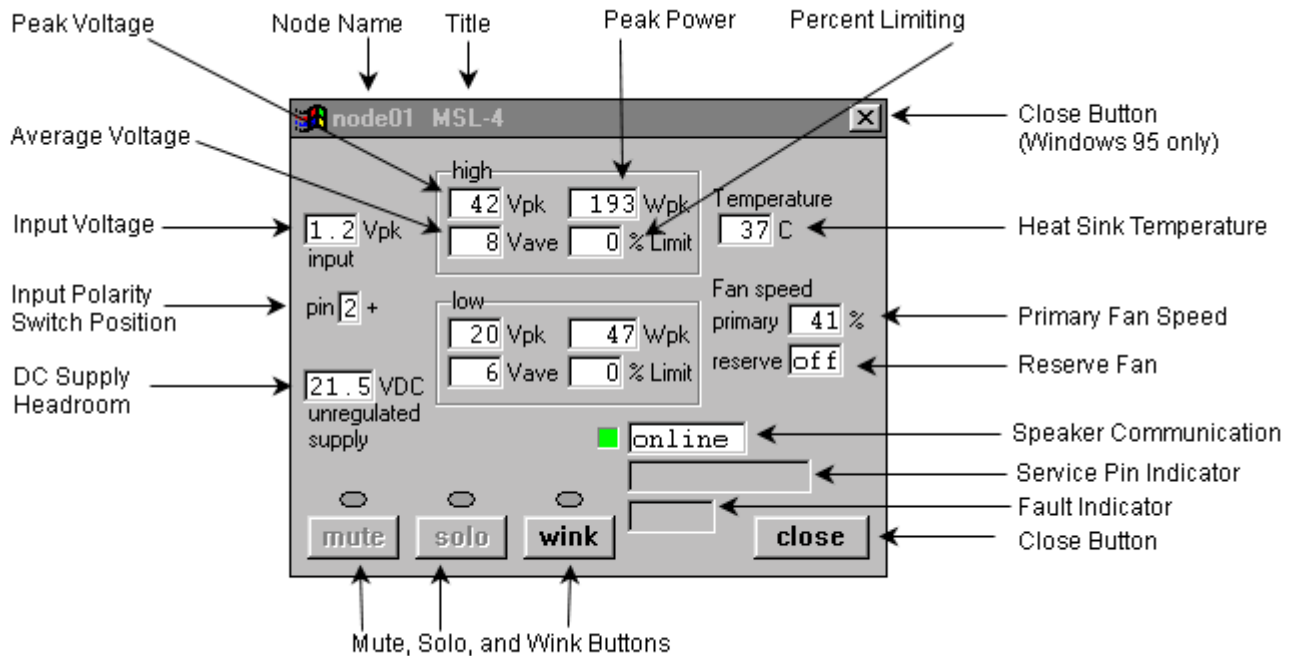
Loudspeaker Views

Input Polarity Switch Position	This display shows if the signal input XLR connector is set to pin 2 or pin 3 hot.
Primary Fan Speed	This displays the amount of current sent to the primary cooling fan.
Reserve Fan Active	This bar is yellow when the Reserve fan is on.
Limiting	These displays show limiting activity on their respective amplifier channels. These displays also depict excursion on most subwoofers.
Speaker Title	The title of the speaker.
Driver Diameter	This shows the diameter of the driver being driven by each amplifier channel.
Amplifier Voltage	Indicates peak and average voltage of the amplifier.
Amplifier Power	Indicates the peak power produced by the amplifier.
Heat Sink Temperature	Indicates the temperature of the amplifier heat sink in degrees centigrade.

Loudspeaker Views

The Text View

Two Channel Text View for the Concert Series speakers:



Text View Reference

Close Button	Clicking on this button will close this text view.
Amp Heat Sink Temperature	Displays the temperature of the heat sink in degrees centigrade.
Primary Fan Speed	Displays the speed of the primary fan as a percent of the fan's maximum speed.
Reserve Fan	This field shows the status of the reserve fan.
Speaker Communication	Displays online or off-line depending on speaker communication with the host computer (Green = online, Red = offline).
Service Pin Indicator	When the service pin on the back of the amplifier user panel is pressed this field will display "service pin" and a cartoon face will be displayed on each loudspeaker view.

Loudspeaker Views

Fault Display	This field will alert you to faults such as shorted drivers.
Wink Button	Clicking on the Wink button will light a green LED labeled “Wink” on the RMS user panel of the loudspeaker. This can be used to identify the loudspeaker corresponding to this view.
Mute Button	Clicking on this button will mute the speaker provided muting is enabled.
Solo Button	When muting is enabled (see page 20) clicking on this button will unmute this speaker and mute all other speakers. The button indicator will be yellow when the speaker has been selected for solo operation.
DC Supply Status	This number should be over 17 VDC if the AC main voltage is sufficient.
Input Polarity Switch Position	This display indicates if the signal input XLR connector is set to pin 2 or pin 3 hot.
Input Signal Level	This field displays the peak voltage of the input signal.
Speaker Device Name	The device name that the loudspeaker is using to communicate with the host computer.
Amp Channel Information	Displays the following information for their respective amplifier channels: Peak Voltage, Peak Power, Average Voltage, Percent limiting.
Peak Voltage (Vpk)	Displays the peak voltage of the amplifier.
Average Voltage (Vave)	Displays the average voltage of the amplifier.
Peak Power (Wpk)	Displays the peak power of the amplifier.
Limiting (% Limit)	Displays percent limiting.
Excursion	Displays percent of total excursion.
Attenuation	For Ultra-series speakers equipped with the optional attenuation input module this field displays attenuation in dB.

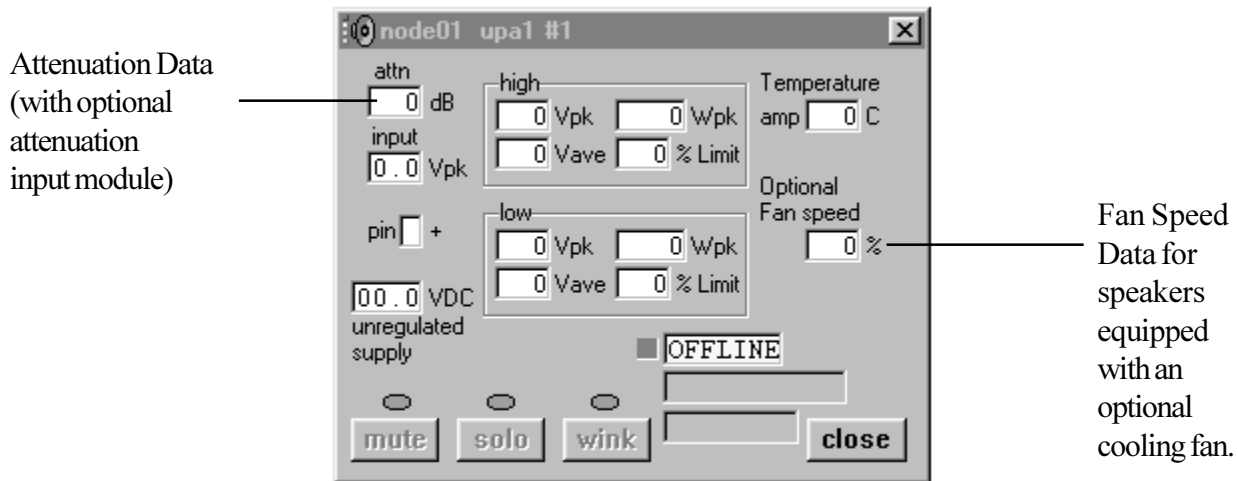
Loudspeaker Views

Differences Between Loudspeaker Models

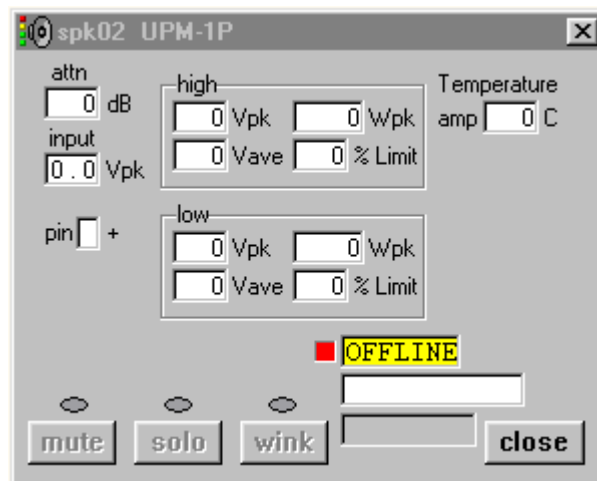
There are a few differences in the loudspeaker data and views for some models. The following two pages highlight these differences.

The Self-Powered Ultra Series Loudspeakers:

The differences between the Concert and Ultra series views are shown in the following illustrations:



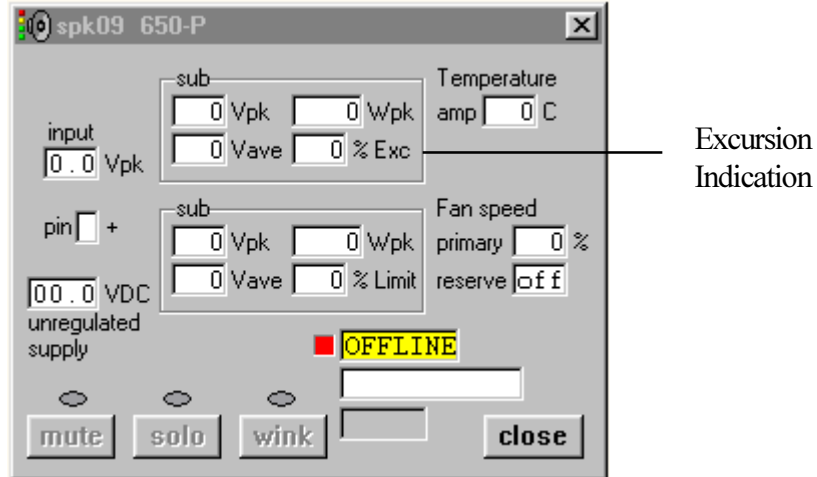
The UPM-1P and UMS-1P also optionally display attenuation, but do not display fan speed or unregulated supply voltage.



Loudspeaker Views

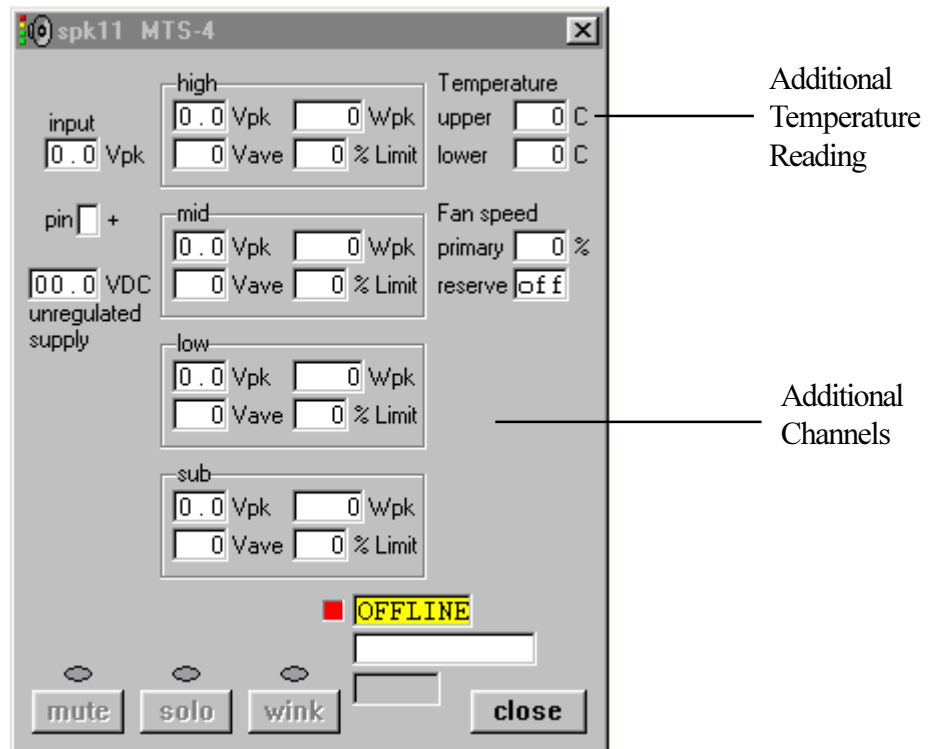
Self-Powered Subwoofers:

Many of the subwoofer loudspeaker models display excursion limiting as well as limiting.



Four Channel Amplifier Loudspeakers:

Four channel models display voltage output, power output and limiting percentages for an additional two channels. They also display temperature readings for upper as well as lower amplifier sections. In addition, the PSW-6 displays excursion limiting for the front and rear drivers and the MSL-6 displays VHF limiting for the high driver.



The Options Menu

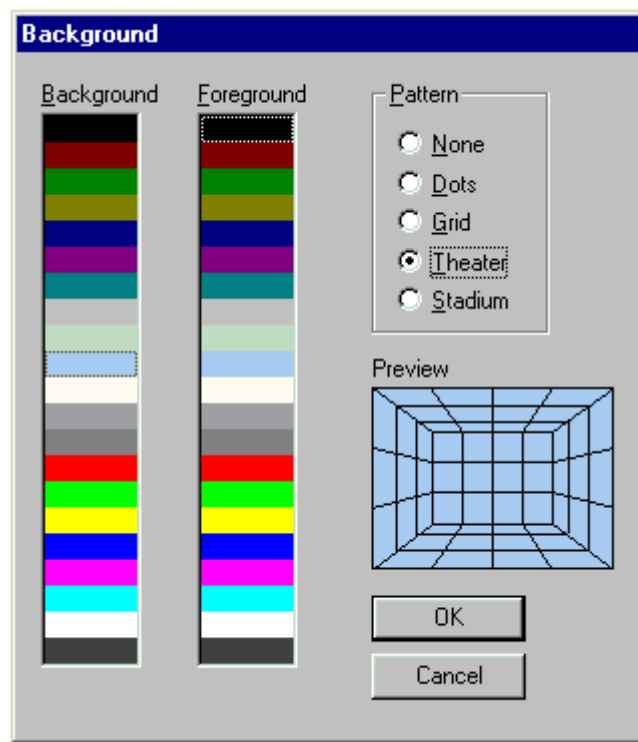
When you select Options in the menu bar, or hold down the **Alt** key and press **O**, the Options pull-down menu will appear. This menu consists of the following options:

Status Bar	Toggles the status bar display on & off.	
Background...	Opens the Background Settings dialog box.	Ctrl+B
Muting...	Opens the Muting Settings dialog box.	Ctrl+M
Title...	Opens the Title Settings dialog box.	Ctrl+T

Choose Status Bar from the Options menu (Options>Status Bar) to toggle the status display at the bottom of the screen off & on.

Changing Background Settings (Ctrl+B)

Choose Background from the Options menu (Options>Background) to launch the Background Settings dialog box. Select the background color, foreground color and pattern for the panel background. A preview of your choices will be shown in the lower right. Use the radio buttons to choose between patterns and use the mouse to select your desired colors. Click OK to exit and apply the changes to the current background. Click Cancel or press the **Esc** key to discard changes and return.

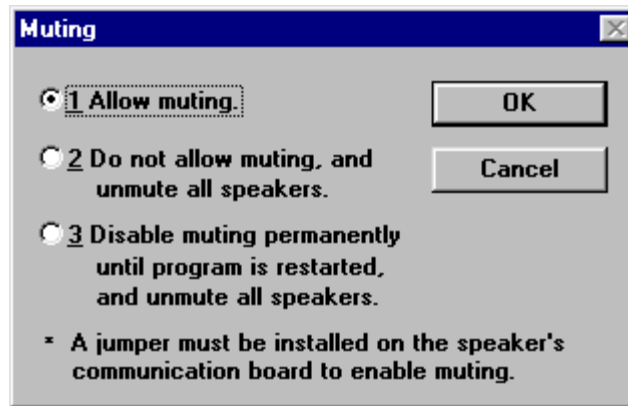


The Options Menu

Changing Muting Settings (Ctrl+M)

Choose Muting from the Options menu (Options>Muting) to launch the Muting Settings dialog box.

Changing the Muting options will only be effective if your RMS speakers are muting enabled. A jumper on the amplifier communication board must be set to mute. This procedure is done at the factory but may be done by the user. For information on changing the muting jumper yourself, refer to Appendix page 1-26 of this User's Guide.



To switch between Muting options, select the radio button next to the muting option you want.

1. Allow muting: Enables muting and soloing of speakers.
2. Do not allow muting: Switching to this option will unmute all speakers and will prevent muting and soloing until the muting option is changed (**Default**).
3. Disable muting permanently: This option will unmute all speakers and prevent muting until the program is restarted and the options are changed.

Click OK to exit and apply the muting settings. Click Cancel or press the **Esc** key to discard the changes and return.

Changing Title Settings (Ctrl+T)

Choose Title from the Options menu (Options>Title) to launch the Title Settings dialog box. Select Show Device or Show Title to choose what text is displayed at the top of the loudspeaker views. It is useful to display the device names when installing and configuring an RMS system. Click OK to exit and apply the title change. Click Cancel or press the **Esc** key to discard the changes and return. By default, the speaker title is shown at the top of the loudspeaker views.

Exiting RMS (Alt F4)

To exit the RMS program, select Panel in menu bar and then select Exit, or hold down the **Alt** key and press **F4**. If you have not saved your work a dialog box will prompt you to save. Choose Yes to save your changes and choose No to discard any changes you made since last saving the panel.

RMS Quick Reference Guide

Key to Alarms and symbols



Service pin on the amplifier user panel is pressed.



Warning Icon Shows if any of the following are present:

Amp Heat Sink Temperature > 70° C

Primary Fan Off or Speed is > 97%

Reserve Fan On

Open Driver Circuit

Driver Short Circuit

Speaker Offline

Short Cut Keys

Ctrl+N	Panel-New
Ctrl+O	Panel-Open
Ctrl+S	Panel-Save
Ctrl+A	Add Page
Ctrl+D	Delete Page
Ctrl+R	Rename Page
Tab Key	Scroll through panel pages
1,2,3...0	Display panel page 1 to 10
Ctrl+M	Muting Dialog
Ctrl+B	Background Dialog
Ctrl+T	Title Dialog
Alt+F4	Exit RMS

Appendix

Program Notes

To backup your RMS files from hard disk to floppy disk, backup all the files in the **C:\TNODE** directory and subdirectories. These directories contain the RMS database files, the RMS executable, and Panel files.

These Files can be backed up with the DOS commands COPY and XCOPY. For more information on using these commands to backup and restore RMS files, refer to your DOS or Windows manual.

The **RMS Database** is initially an empty database, which is installed on the host computer when it is first configured. If these files are copied to your hard disk at a later date, all logical installation information will be lost. The directories, groups, and paths described below are normally setup when your computer is factory configured for RMS, and need not be changed.

All of the RMS programs and files are located on the computer's first hard disk, assumed to be **disk C:**. The RMS database consists of the files located in the directory **C:\TNODE** and its subdirectories. These files are used by **LonMaker** to create a network configuration of installed loudspeakers and by the DDE server and the RMS executable to monitor speakers.

The **DDE server**, **LMSRVR.EXE** is located in **C:\LONWORKS\LM_DDE**. It is a Windows program that normally runs minimized (as an icon).

The RMS executable, **RMS.EXE**, is located in **C:\TNODE**. It is a Windows program. When **RMS.EXE** is started, it automatically starts the **DDE server** if it is not already running. It normally runs maximized (full screen). The **LonMaker** program, **LNMG.EXE**, is located in **C:\LNM**. This program is used to install loudspeakers on the network. This is a DOS program. When LonMaker is started, it automatically opens a DOS window. It normally runs maximized for best resolution.

Windows Program Groups

Icons for the RMS program, labelled "Remote Monitoring System", are located on the desktop and in the Meyer Sound Laboratories program folder, and the start-up program group. These icons refer to the **RMS.EXE** Windows executable located in **C:\TNODE**.

The Icon for the DDE server is located in the LonManager DDE Server program group. This icon refers to the **LMSRVR.EXE** Windows executable (EXE) located in **C:\LONWORKS\LM_DDE**.

Icons for the LonMaker program, labelled "LonMaker", are located in both the Meyer Sound Laboratory program group and on the desktop.

If you do not wish to start RMS every time Windows is started, simply delete the RMS icon from the start-up group. To restore the RMS icon to the start-up group, copy it from the Meyer Sound Laboratories program group. Icons can be copied from group to group by holding the CTRL key and dragging the icon from one group to another. If no RMS icon can be found, the Windows file manager can be used to create a program item (icon) from the **RMS.EXE** executable in **C:\TNODE**.

Windows Screen Resolution

The default screen resolution is 1024x768 pixels. At higher resolutions, more icons may be placed on the screen but will be smaller. To change the Windows screen resolution, select the Windows Setup icon, or use the program supplied by your video card manufacturer. For more information, see your Windows documentation. A 16 bit or greater color screen is required to take full advantage of RMS.

Panels

Panel files are stored by default in the **C:\tnode** directory. Panels may be saved to other directories and disks by using the Panel|SaveAs function, and entering a new target destination.

Appendix

The RMS.INI file

The RMS program maintains information in the RMS.INI file located in the Windows directory. The contents of a typical RMS.INI file is shown below.

```
[RMS]
LastFile=C:\TNODE\DEMO.PNL
Pattern=102
Color1=12
Color2=6
```

The LastFile entry contains the last panel file used by RMS. When RMS starts, it reads the RMS.INI file and loads the last used panel automatically. The pattern and color entries are used for the background; if the panel file does not contain this information (i.e. from an earlier version of RMS), the values in RMS.INI are used. If the RMS.INI file is not present, RMS will continue to operate normally.

Please refer to your MS-DOS and Windows documentation for information on Autoexec.bat files, paths, program groups, program items, and .INI files.

The PCLTA board used by the RMS desktop host requires a driver to be loaded every time the computer starts up. The config.sys, located in the root directory of the boot drive (drive C:) has an entry similar to the following:

```
DEVICE=C:\LONWORKS\BIN\LDVPCLTA.SYS/P340/D1/U15/I50/O50/
```

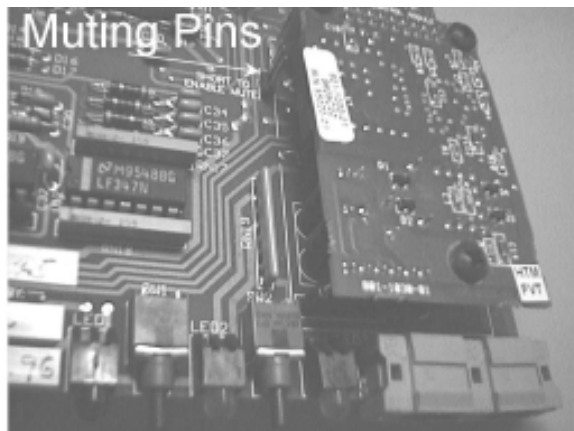
This line automatically loads the proper driver at boot up.

Note: If you are using the PCLTA-10 or PCC-10 card, the above mentioned driver is not needed.

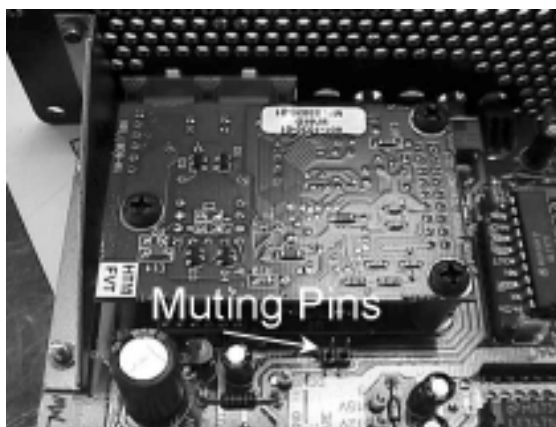
Changing the Muting Jumper

In order to enable the muting and solo functions of RMS, your RMS amplifiers must be set to muting enabled. This involves installing the jumper you received with your RMS speaker onto the communications board.

1. Remove the AC power cord from the speaker and wait at least five minutes disassembling the speaker.
2. On the RMS board are two jumper pins labeled “short to enable mute”. Install the two pin header shipped with your RMS speaker onto these pins. Then reassemble the speaker.



MP-X Series Communications Board Detail.



Ultra Series Communications Board Detail.

RMS™ Host Computer Requirements List

Minimum System Requirements:

Operating System:	Windows® 95/98
RAM:	32 MB
Hard Disk:	10 MB available space
Floppy Drive:	1.44 MB
Video Card:	1 MB VRAM - 16 bit color
CPU:	Pentium Processor
Display:	800x600 screen resolution
Accessories:	mouse pointing device

RMS desktop computers must have one free half length ISA slot for the Network Communications Board.

RMS laptop computers must have one free Type II PCMCIA slot.

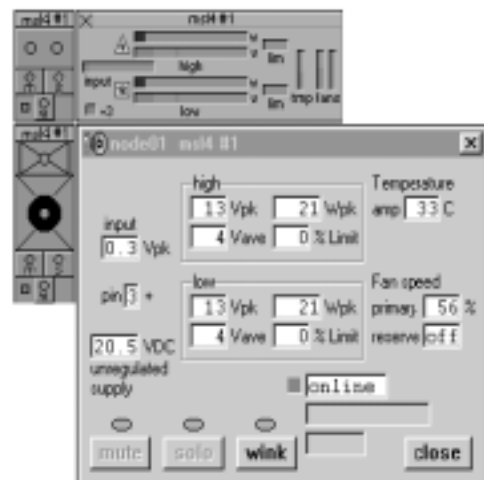
Recommended RMS System:

Operating System:	Windows® 95/98
RAM:	64 MB
Hard Disk:	20 MB available space
Floppy Drive:	1.44 MB
Video Card:	4 MB VRAM for desktop computers 2 MB VRAM for Laptop computers
CPU:	266 MHz Pentium or greater
Display:	1024x768 screen resolution for Laptops or Desktops
Accessories:	mouse pointing device





Remote Monitoring System Host Computer Software Installation



RMS™ Host Computer Software Installation

May 24, 2000

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RMS™ Host Computer Software Installation

This guide lists the all the steps necessary to install and configure the software components of an RMS Host Station. The RMS host software runs on Windows 95/98 operating systems. This guide assumes that you have a working Windows 95/98 computer and some experience in setting up and troubleshooting MS-Windows based computers.

Note: We recommend installing RMS on a dedicated computer, free from other applications.

For information on minimum system requirements, refer to the Meyer Sound Document “RMS™ Host Computer Requirements List.” (Meyer Sound Part Number 05.033.075.13 Rev A3.5)

This guide is part of an RMS Host Desktop or Host Laptop Computer Kit. Also included in these kits :

Hardware Components for a Desktop Kit:

1. **RMS PCLTA-10 with FT-10A network interface card** Meyer Sound Part Number 950.052
2. **RMS Cable (10 feet)** Meyer Sound Part Number 28.033.079.01

Hardware Components for a Laptop Kit:

1. **RMS PCC-10 (PC Card)** Meyer Sound Part Number 950.034
2. **RMS PC Card Cable** Meyer Sound Part Number 28.033.080.01
3. **RMS Cable (10 feet)** Meyer Sound Part Number 28.033.079.01

Software Components:

1. **Echelon LonManager DDE Server Software** Meyer Sound Part Number 950.029 (2 disks)
2. **Echelon LonMaker** Meyer Sound Part Number 950.030 (2 disks)
3. **RMS Program and Database installation disk** 90.033.047.01 (1 disk)
4. **Echelon LonWorks PCC-10/PCLTA-10 Installation Software for Windows 95/98** Meyer Sound Part Number 90.033.047.04 v2.0

RMS™ Host Computer Software Installation

Installing the LonWorks PCC-10 / PCLTA-10 Driver Software

1. Turn on the computer and start Windows.
2. Insert the PCC-10 / PCLTA-10 Installation Software disk into drive A.
3. From the Windows Start Button select Settings then Control Panel. Double click the Add / Remove Programs Icon and select Install and then next.
4. The text in the dialog box should read “A:\setup.exe”. If not, change it. Then press <Enter>. The Lonworks PCC-10 / PCLTA-10 Installation program will start.
5. When prompted, select English as the native language and then select Next.
6. Review the licensing agreement and select Yes if you agree to the terms presented.
7. The installation program will prompt you to chose a destination directory. Select Next to choose the default directory “C:\lonworks”. The installation program will begin copying files.
8. When prompted with “Do you want to add a ‘PCCLON1’ and a ‘PCCLON2’ device in your DOS CONFIG.SYS file now?”, select Yes.
9. When prompted with “Do you want to add a DOS ‘virtual’ device driver which will allow you to access the interface from DOS applications under Windows?”, select Yes.
10. At the Setup Complete dialog select Finish. This will launch the readme file for the driver. When you are finished reading, close the text window by selecting File and then Exit.
11. At the Restart Windows dialog select “No, I want to restart my computer later” and then select OK.

Installing the PCLTA-10 ISA Network Interface Card (Desktop installations only)

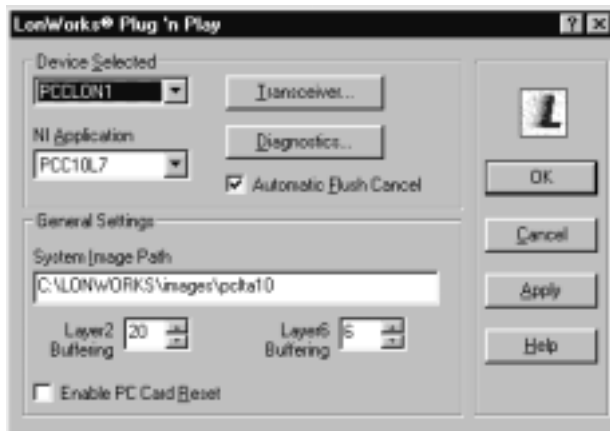
1. From the Start menu, select Shut Down . . . and shut down the computer by selecting ‘Shut down the computer?’ and then selecting Yes.
2. With the PC powered down, unplug the computer from your AC outlet and remove the cover.
3. Plug the PCLTA-10 card into a free ISA card slot. Replace the computer cover, plug the computer back into your AC outlet, and reboot the system.

Installing the PCC-10 PC Network Interface Card (Laptop installations only)

1. From the Start menu, select Shut Down . . . and shut down the computer by selecting ‘Shut down the computer?’ and then selecting Yes.
2. The card you are about to install is a Type II PC Card and will only work in a Type II compatible slot. Consult your laptop manual for PC slot locations, types and installation information.
3. Install the PCC-10 PC card and reboot the system.

RMS™ Host Computer Software Installation

4. When Windows starts, it will automatically locate the PCLTA-10 or PCC-10 card and install the necessary drivers.
5. Open the control panel (Start menu, Settings, Control Panel) and double click the Lonworks Plug 'n Play utility.
6. In the Device Selected field, verify that PCCLON1 is selected.
7. In the NI Application field, select PCC10L7.
8. Verify that the systems image path contains *c:\Lonworks\images\pclta10 or \pcc10*.
9. After verifying that your Lonworks driver configuration is correct, select OK to exit and select Yes to save the configuration settings.



LonWorks Plug 'n Play utility screen for a desktop host workstation

Note: For a laptop host workstation the System Image Path field should contain:

C:\LONWORKS\image\pcc10

Installing the Echelon LonManager Dynamic Data Exchange (DDE) Server

This consists of two disks from the Echelon Corporation labeled “LonManager DDE Server” release 1.53 (or higher) (Meyer Sound Part Number 950.029.). While running Windows:

1. Insert the DDE server disk #1 into drive A.
2. Open the control panel (Start menu, Settings, Control Panel). Double click the Add / Remove Programs Icon and select Install and then Next.
3. The text in the dialog box should read “A:\setup.exe”. If not, change it. Then press **<Enter>**. The DDE Server Installation program will start.
4. At the DDE Welcome window select Continue to run the setup. When prompted, enter your name and company name then select Continue to proceed.
5. At the Custom Installation window select Install.
6. When prompted, insert the DDE server disk #2 into drive A: and press **<Enter>**.

RMS™ Host Computer Software Installation

7. When prompted with ‘*Would you like to search for and update any tools, libraries, or utilities that this product may have in common with other products*’ select Yes. The installation program will scan the hard disk.
8. At the Config.sys window **do not check anything** and press **<Enter>**. Ignore the warning “*No driver is installed*” and press **<Enter>** to continue.
9. At the Installation Complete dialog, remove the floppy disk and select Return to Windows.

Installing the Echelon LonMaker Program

This consists of two disks from Echelon Corporation labeled “LonManager LonMaker Software release 2.02 (or higher)” (Meyer Sound Part Number 950.030).

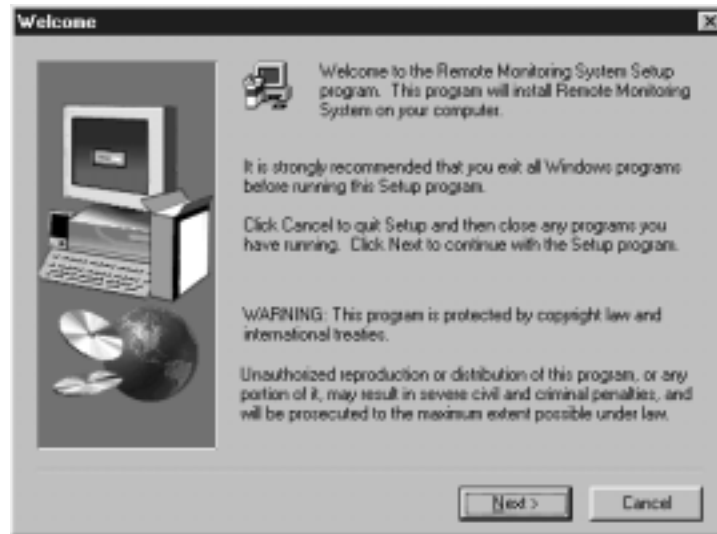
1. From the Start Button select Programs and then Command Prompt. This will bring up an MS-DOS Window.
2. Insert the LonMaker disk #1 into drive A: and at the DOS prompt type **a:\install** then press **<Enter>**. This will run the LonMaker installation.
3. When prompted, press the **<Enter>** key twice to continue, then select Drive C: as the target drive for installation. Press **<Enter>** to continue.
4. When prompted with the \LNM directory, press **<Enter>**. This will specify C:\LNM as the directory where the LonManager will reside on your computer.
5. At the next menu select Install ‘Graphics PC’ executable and press **<Enter>**.
6. When prompted, insert the second LonMaker disk into drive A: and press **<Enter>** to continue.
7. When prompted with ‘*Modify Autoexec.bat?*’ Press Y and then press **<Enter>** at the following window.
8. When prompted with ‘*Modify Config.sys?*’ Press Y and then Press **<Enter>** at the next screen to continue.
9. Press **<Enter>** to continue. At the C:\LNM prompt remove the disk from drive A: and restart the computer.

Installing the RMS Host Program (Meyer Sound Part Number 90.033.047.01)

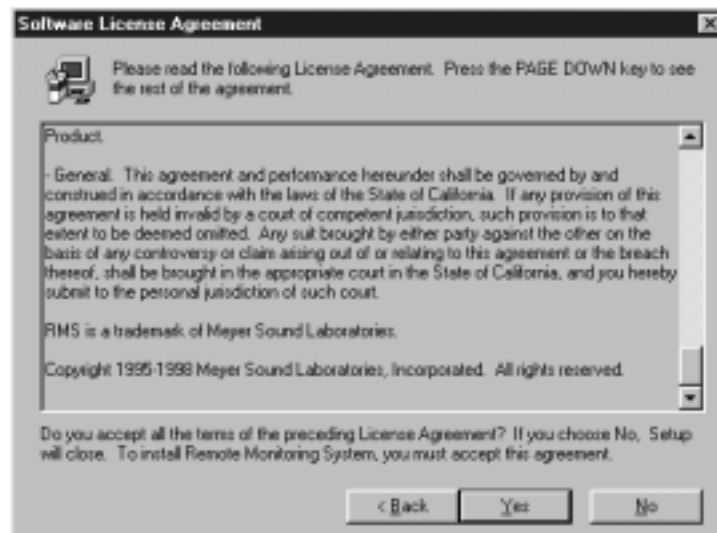
1. From Windows, insert the “RMS Program & Database for Windows” installation disk into drive A: .
2. Open the control panel (Start menu, Settings, Control Panel). Double click the Add / Remove Programs Icon and select Install and then Next.

RMS™ Host Computer Software Installation

- The text in the dialog box should read “A:\setup.exe”. If not, change it. Then press **<Enter>**. The RMS installation program will launch this welcome window:

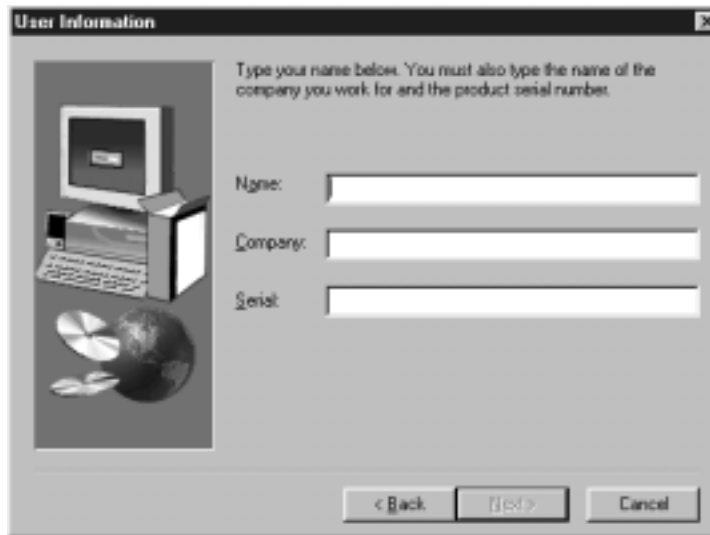


- Select Next.
- The installation program will display the RMS software license agreement. Please read and fully understand the terms of the license agreement and then select Yes if you agree to the terms of this contract. You must accept the terms of this agreement to install RMS.



RMS™ Host Computer Software Installation

- The installation program will display the following window:



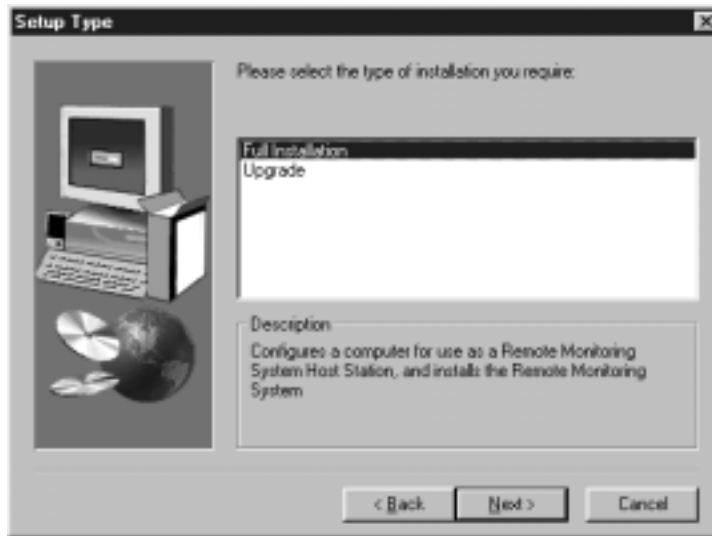
- Enter your name, your company, and the serial number which can be found on the Personal License Password Document (M.S.P.N. 05.033.075.08 Rev. 3.4) included in your RMS documentation package. Carefully enter the serial number data then select Next.

RMS™ Host Computer Software Installation

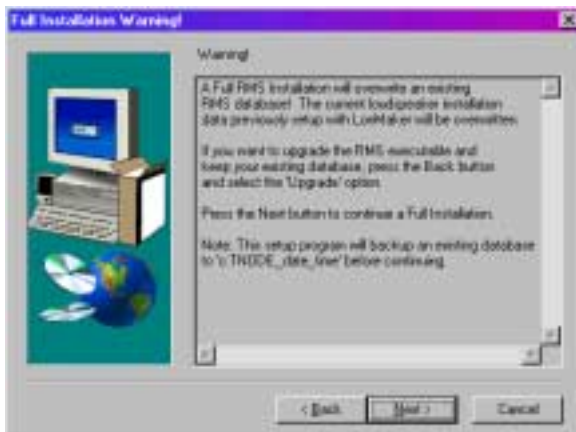
8. The RMS installation program will ask you to select between **Full Installation** and **Upgrade**.

Warning: Selecting **Full Installation** will result in the loss of all data entered into an existing RMS network database. Make sure you select **Upgrade** if you are upgrading from a previous version of RMS and want to keep your network database.

When you are sure of your choice, select that option and click Next.



If you select **Full Installation** you will receive this warning. Click Next to continue.



If you select **Upgrade** you will be presented with this window. Click Next to continue



RMS™ Host Computer Software Installation

- At the next window select the type of installation: Desktop or Laptop. After making your selection based on the type of computer you are installing RMS on, select Next:

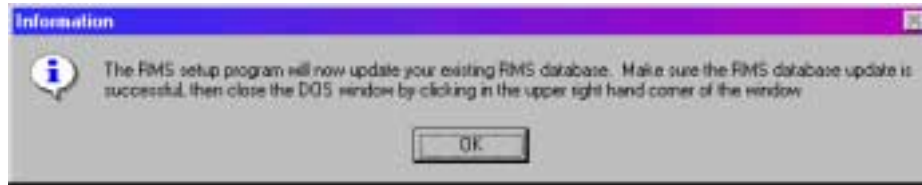


- Select the program folder where you want the RMS and LonMaker icons installed. Then select Next. We strongly recommend using the default program folder.

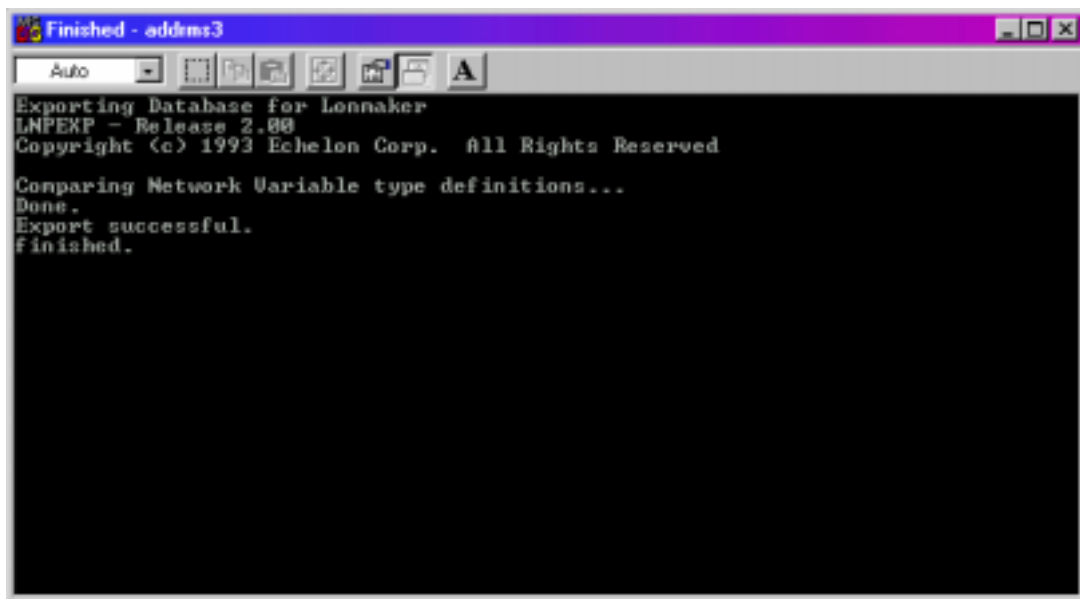


RMS™ Host Computer Software Installation

If you are performing an RMS upgrade, the following **Information** window will appear.



A DOS window will open and the RMS database will be upgraded.



Make sure the RMS database update is successful, then close the DOS window by clicking in the upper right hand corner of the window.

RMS™ Host Computer Software Installation

11. If this is a full install of RMS software, the Setup Complete window the RMS installation program will display a message regarding the DDE server. In order to run RMS you must first configure the DDE server. Select Finish. You have now completed installation of RMS. Please proceed to the next section of this document to verify and configure the LonMaker program and the DDE Server.



If this is an upgrade of existing RMS software, the Setup Complete window the RMS installation program will display as follows. If you want to view the Read Me file or start RMS, select those options before clicking Finish. You have now completed installation of RMS.



RMS™ Host Computer Software Installation

Check LonMaker

1. Close the DDE Server and the RMS program if they are running and then double click on the LonMaker icon located on the desktop or in the Main program group. This will launch the LonMaker program. When LonMaker starts, a warning message regarding conventional memory may be shown. Press any key to continue loading LonMaker. LonMaker will function as required by RMS.

Note: If you would like to address the warning message consult Appendix A of this document.

2. At the top right of the LonManager window you should see a button that says “*Attached to Network*”. If the button reads “*Not Attached to Network*”, click on the button and it should change to “*Attached to Network*”. If it does not, check that the DDE Server is not running and then restart LonMaker again.
3. If your RMS Host computer has other peripherals (i.e. soundcard, network adapter, etc.), you may be encountering a hardware conflict between the RMS network card and another device.
4. If LonMaker runs properly, select the Exit icon to exit and return to windows. Refer to the “Self-Powered Loudspeaker Installation and Wiring Guide” for more information regarding operation of the LonMaker program.

RMS™ Host Computer Software Installation

DDE Configuration

1. From the Start Button select Programs and then the LonManager DDE Server folder.
2. Select the LonManager DDE Server Icon. At the welcome screen click OK.

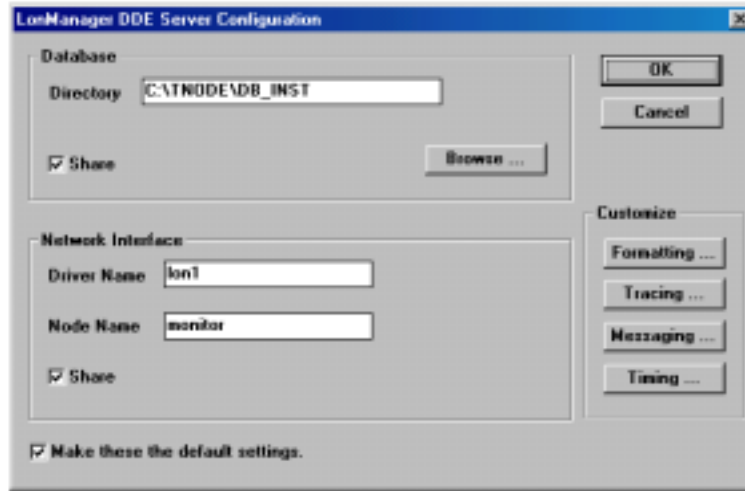


LonManager DDE Server Folder and Icon

RMS™ Host Computer Software Installation

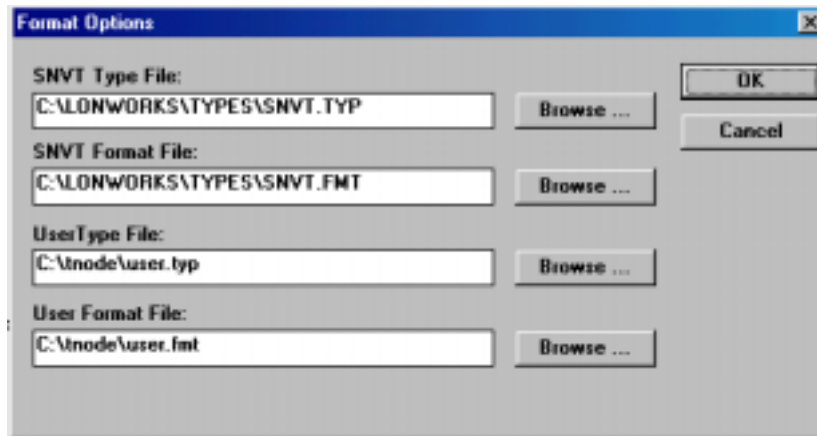
3. At the LonManager DDE Server Configuration dialog type the following into the Database directory field: 'c:\tnode\db_inst'.
4. At the network interface prompt enter the following information.

Driver	lon1	(default)
Node name	monitor	(change from lm)



LonManager DDE Server Configuration Dialog

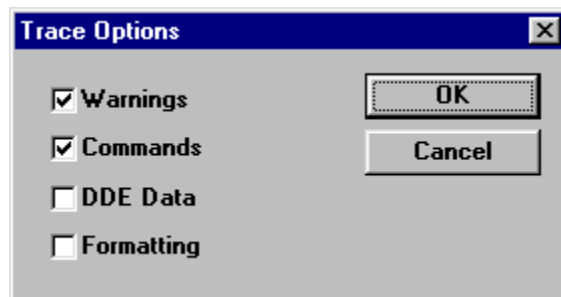
5. Select the two boxes labeled share in the LonManager DDE Server Configuration window so that they are both checked.
6. Select Formatting.
7. In the User Type File field type 'c:\tnode\user.typ'.
8. In the User File Format File field type 'c:\tnode\user.fmt'. Then select OK.



Format Dialog

RMS™ Host Computer Software Installation

9. Select Tracing. Verify that the Warnings and Command options are checked and that the DDE Data and Formatting options are not checked, then select OK .



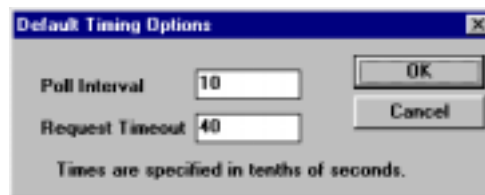
Tracing Dialog

10. Select Messaging.
11. In the Network Variables Only section of the window set the service type to Unacknowledged then select OK.



Messaging Dialog

12. You do not need to change any options in the Timing dialog.



Timing Dialog

RMS™ Host Computer Software Installation

13. Select OK in the LonManager DDE Server Configuration window to save the changes you made. The DDE Server will display a series of initialization messages and then a welcome screen. You do not need to click OK. The window will disappear shortly.
14. Select the LonMaker DDE Server Icon on your Task Bar . This will Restore the minimized LonManager DDE Server program. Check the window for error messages, then close the program by selecting File and then Exit.

Disabling Screen Savers

Although this step is not required, it is recommended since most RMS users will wish to have the RMS display active at all times.

1. If your computer is running a third party Screen Saver (e.g. After Dark) disable it. If you need help in doing so consult the screen saver documentation.
2. If you are running a Windows screen saver disable it.
 - A. From the Start Button select Settings, then Control Panel then Display.
 - B. At the Display window click the tab at the top of the screen titled Screen Saver.
 - C. At the Screen Saver dialog set the screen saver to None then click OK.
 - D. Close the Display window and the Control Panel.

Restarting and Running RMS

Restart your computer. Your computer should run RMS automatically on start-up. The DDE program will display a welcome screen. You do not need to click on the OK button as it will vanish after a few seconds. The DDE server will run minimized as an icon. The RMS panel screen will be displayed.

Congratulations, you are now running RMS.

To begin monitoring speakers you must first install each self-powered loudspeaker onto the RMS Network. For loudspeaker installation procedures refer to the “RMS Self-Powered Loudspeaker Installation and Wiring Guide” document. (MSPN 05.033.075.07)

RMS™ Host Computer Software Installation

Appendix A

Note: Before spending a great deal of time trying to get rid of the memory warning that appears when starting LonMaker, please be aware that LonMaker will still function correctly if you choose to ignore the warning. It will not interfere with the installation routines as described in the RMS Self-Powered Loud-speaker Installation and Wiring Guide.

If you wish to rid your computer of memory resident programs, follow the steps below:

- A. Open the MS-DOS window by double clicking on the MS-DOS icon.
- B. Edit the config.sys and autoexec.bat files using the DOS editor <edit.exe>. Remove any programs or drivers not used by RMS which may be taking up memory.
- C. Reboot the computer so that the changes to the system files take effect.
- D. Go to the LonMaker MS-DOS window memory properties page and set the total conventional memory back to 600k.
- E. Close the properties page and double-click on the LonMaker icon to start the program.
- F. Repeat steps A-F until 600k of conventional memory is free.

Note: If you cannot, or do not want to remove any memory resident programs, and still get the warning message the following procedure shows how to add the Expanded Memory Driver to your system.

The following procedure is not recommended for users who run RMS on a dedicated Host System, free from other applications. Installing these drivers may decrease the amount of available conventional memory.

If you have removed or do not want to remove memory resident programs, and you continue to receive memory warnings when starting LonMaker, you can load the Expanded Memory Driver and the Extended Memory Specification that comes with Windows. To do so, add the following lines to the beginning of your Config.sys file:

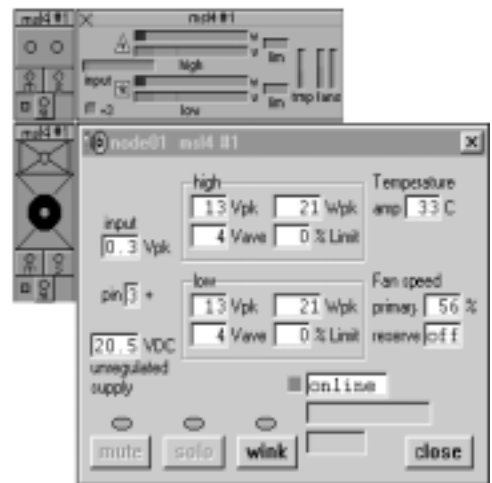
```
DEVICE=C:\WINDOWS\HIMEM.SYS  
DEVICE=C:\WINDOWS\EMM386.EXE RAM
```

This may increase the amount of available conventional memory on most systems.

If you are still receiving memory warnings, and you want to continue to pursue a solution, please refer to Windows 95 Help, and look in the Index under index entry 'memory' and then under the subentry 'troubleshooting'.



Remote Monitoring System Self-Powered Loudspeaker Installation and Wiring Guide



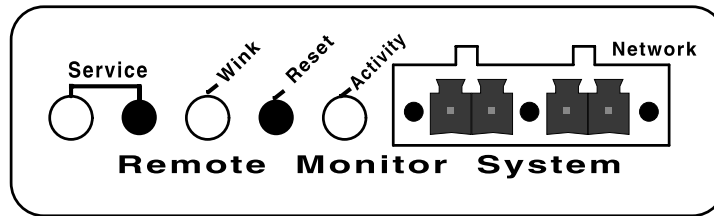
Self-Powered Loudspeaker Installation and Wiring Guide

May 24, 2000

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The RMS™ Self-Powered Loudspeaker User Panel



Every RMS enabled Self-Powered Loudspeaker contains an RMS User Panel on the back of the speaker cabinet. The RMS User Panel has three LEDs and two buttons. Their functions are described below:

Service LED - When blinking once every two seconds, the Service LED indicates that the network hardware is operational, but the loudspeaker is not installed on the network.

When the loudspeaker has been installed on the network the Service LED will be unlit and the Activity LED will flash continuously..

When continuously lit ,the Service LED indicates that the loudspeaker has a local RMS hardware failure. In this case, the RMS communication board may be damaged and you should contact Meyer Sound Technical support.

Service Button - Pressing the service button will display a cartoon-face icon on the corresponding loudspeaker display icon on the RMS screen.

Wink LED - When this LED is lit, the Wink LED indicates that an ID signal has been sent from the host station computer to the loudspeaker. This is done using the wink button on the loudspeaker Icon, Meter or Text views in the RMS host program.

Reset Button - Pressing this button will reset the network module inside the loudspeaker. This will cause a muted loudspeaker to unmute, but will not otherwise affect the loudspeaker installation.

Activity LED - When the Activity LED is unlit the loudspeaker has not been installed on the network. When the loudspeaker has been installed the Activity LED will flash continuously.

RMS™ Self-Powered Loudspeaker Installation

This guide lists the steps necessary for installing Meyer Sound Self-Powered Loudspeakers on a RMS Network. Loudspeakers must be installed on the RMS Network before the RMS Host program can access them. There are 3 steps involved with installing a self-powered loudspeaker:

1. **Define the device** – Add a new device definition to the network database.
2. **Install the device** – Identify the device to the network through the use of the service pin on the RMS Self-Powered Loudspeaker User Panel.
3. **Connect the device** – Associate network variables between the device and the monitor program (RMS Host program). If this step is skipped, RMS will access the loudspeaker, but the data update rate will be slowed down. The degraded data update rate will be noticeable when a meter view is opened for a loudspeaker on a RMS Host panel.

The LonMaker Network Management program is used to Define, Install and Connect Meyer Sound Self-Powered Loudspeakers on a RMS Network.

Starting the LonMaker Program

1. Close the RMS program and the DDE server if open.
2. Double click on the LonMaker icon on the desktop.
3. If you encounter a warning message which reads “*Not enough memory for all functions:*”, press **<Enter>** to continue. LonMaker will run fine after ignoring this warning message. To address this memory warning, refer to Appendix A. in the Host Computer Software Installation section included in your RMS documentation package.
4. At the LonMaker welcome window press **<Enter>** to continue. You will see a set of messages; “*Initializing...*”, “*Accessing network...*” and “*Parts Catalog Rev. #*”. After the messages complete, the main screen will appear.
5. In the upper right corner of the LonMaker window you should see a button that says: “*Connected to Network*”. This message will appear even if you have not yet installed a loudspeaker. This message is confirmation that your computer has recognized the Echelon PCLTA-10 or Echelon PCC-10 board. If the message reads “*Not Connected to Network*”, try initializing the network card again by clicking on the button. If you continue to see the message “*Not Connected to Network*” and have already installed the Echelon PCLTA-10 or PCC-10 card refer to the RMS Host Computer Installation document included in your RMS package.

RMS™ Self-Powered Loudspeaker Installation

Defining Devices

1. Power the amplifier you wish to install and connect the RMS cable from either RMS port on the amplifier to the RMS port on your computer. Note: Multiple loudspeakers may be connected to the network while loudspeakers are installed.
2. Select the Device Setup button, then select the Define button or press **F2** to launch the Define Device window. Make sure **eng** is selected in the Locations window.
3. Enter a unique name in the Device Name field (up to eight characters). Use incremental names (i.e. spk01, spk02, node01, node02, Sub1, msl4-1, etc.). This name is used to identify the loudspeaker when it is added to a panel in the RMS Host program. You may choose to use a device name that indicates the location of the loudspeaker in your setup (i.e. left01, right01, mon1, rear1, etc.).
4. Select the pull down menu button in the Device Type field or press **F2**. This will launch a window that will allow you to choose from a list of Device Types. Using the mouse and or the arrow keys highlight **prod6h** or **rms3**. Loudspeakers shipped after a certain date will contain the **rms3** firmware. Double click on the selection or press **<Enter>** to confirm your selection and return to the main Define Device window. Note: If the incorrect device type for a particular loudspeaker is selected the **Install** step will fail. If this happens, use the Remove function in the Device Setup section of LonMaker to remove the device, then redefine the loudspeaker as described above and select another device type.
5. Click on the pull down menu button in the Chan Name field or press **F2**. Highlight **sp_channel** with the mouse cursor or by using the arrow keys, then press **<Enter>** or double click on the highlighted text to confirm your selection and exit this window.
6. At this point the main Define Device window should contain the following information.

Device Name:	spk01 (or next in sequence)
Location:	eng
Device Type:	prod6h or rms3
Chan Name:	sp_channel
Chan Priority:	NO
7. If any of the fields are set to values different than those list above (other than the Device Name) change them to reflect the listed values, otherwise click on the Save button or press **F6** to store the device setup information.
8. If you wish to install more than one loudspeaker, continue to enter device names pressing **F6** after each entry in order to save the data. When you are done adding devices, click on the Cancel button to exit the Define Device window.

RMS™ Self-Powered Loudspeaker Installation

Installing Devices

1. Click on the Installation button which is located on the left side of the screen.
2. Using the mouse, highlight the name of the device you want to install.
3. Press **F3** or click on the Install button to begin the installation.
4. When the computer prompts you to do so, press the service pin on the user panel of the loudspeaker. If there is a long a period of inactivity, check the RMS cable and the RMS connections and press the pin again.

Note: All RMS self-powered loudspeakers are installed before leaving the factory. If you are trying to install a newly defined device that already has configuration data in it you may receive the following message *“The device you have selected already has configuration data in it”*. Click on the Continue button or press **F2** to replace the configuration data in the loudspeaker. If the device was already defined and installed in the database you will receive the following error message: *“the Device ‘name’ is already installed”*. In this case use the Repair function in the Control section of LonMaker to replace the device data. See *“Replacing a RMS Powered Loudspeaker”* section later in this guide.

5. When prompted with *“Installation Successful”* press **F10** or click on Done. You may wish to write the device name on a label and apply it to the back of the loudspeaker.

Creating Connections

1. Highlight the device name of the most recently installed loudspeaker (i.e. spk01), then press **F8** or click on the Connect button to launch the Connect window.
2. Click on monitor in the devices window. This will bring up a new button at the bottom of the screen titled Auto.
3. Press **F3** or click the Auto button. A plus (+) will appear next to the word monitor as confirmation.
4. Press **F10** or click on Done to create the new connection.
5. A *“creating connections”* message will appear. When the loudspeaker is connected the message will disappear.
6. Repeat steps 1-5 for each loudspeaker installed.

RMS™ Self-Powered Loudspeaker Installation

Checking the Amp Type and Testing the Loudspeaker

1. Click on the Control button on the left side of the screen then press **F9** or click on the Data button in the lower right of your screen.
2. In the lower of the two windows on your screen is a line which contains information about the **nciAmptype** network variable. Identify this line and highlight it by clicking on it with the mouse. The value for **nciAmptype** is set in each speaker before they leave the factory and you should not have to change it. The value for the **nciAmptype** should be set to **2** for 2-channel amplifiers and **4** for 4-channel amplifiers. The default is 2. The only 4-channel amplifiers, at the time of publication, are in the MTS-4, the MSL-6, and the PSW-6 self-powered loudspeakers. To modify the **nciAmptype** press **F2** or select the Modify button. This will launch a window which will allow you to set the proper value.
3. After setting **nciAmptype**, highlight one of the following fields in the upper window:

nvo15	Highlight this line if you have installed a two channel amp.
nvo24	Highlight this line if you have installed a four channel amp.
4. Verify that the computer is receiving data from the amplifier by pressing **F7** or clicking on the Info button. This will launch a window titled Raw Data Info. Watch the Hex Data field. The numbers in the far left of this field will increment if the loudspeaker is properly installed and connected.
5. When you have verified that the amp is sending data to the computer press **F10** or click on the Done button.
6. Select the Wink function by using the mouse or pressing **F5**. The Wink LED on your amplifier user panel will light momentarily. If you miss the indication, select the wink function again.
7. Keep a list of the serial numbers, loudspeaker types, and device names of all of the loudspeakers you install. You will need to refer to it later, when you add the speakers to a panel in the RMS Host program. You may want to label the back of the speaker cabinet with the device name.
8. If you want to install more speakers, return to the Defining Devices section on page 3-5.

RMS™ Self-Powered Loudspeaker Installation

Exiting LonMaker

1. Select the Exit button in the lower left corner of the screen.
2. Press F10 or click the Exit button to confirm.

Replacing a RMS Self-Powered Loudspeaker

If you are replacing an RMS self-powered loudspeaker and wish to use a previously installed device, follow these steps:

1. Disconnect the damaged loudspeaker from the network and connect the new loudspeaker.
2. Start the LonMaker program and then select Repair.
3. Highlight the name of the device you wish to replace and then select Replace. When prompted, press the service pin on the new loudspeaker.
4. Exit LonMaker when the process is complete.

Un-installing a Self-Powered Loudspeaker.

To remove the logical installation from the firmware of an RMS amplifier because of a node conflict follow these steps:

1. Press the service pin on the loudspeaker user panel and hold it in.
2. Press and release the reset pin on the loudspeaker while continuing to hold the service pin in.
3. Continue to hold the service pin until the activity LED stops blinking.
4. Release the service pin.
5. The loudspeaker activity LED will turn off and the service LED will blink every two seconds indicating that the loudspeaker is now uninstalled.

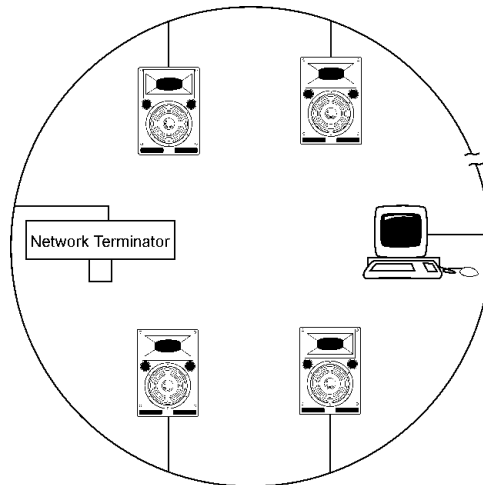
RMS™ Network Wiring Information

While it is possible to wire an RMS system in a near-infinite number of ways, an individual network using Free Topology (flexible wiring configuration) can only address 62 Loudspeaker nodes over a maximum cable length of 500 meters (1640 feet) using 22 AWG cable and a single bus terminator. A terminator is a simple resistive capacitive device designed to prevent network reflections. Using a double terminator topology with 22 AWG cable allows a maximum cable length of 1400 meters (4593 feet). Using 16 AWG cable and a double terminator will allow a maximum cable length of 2700 meters (8858 feet).

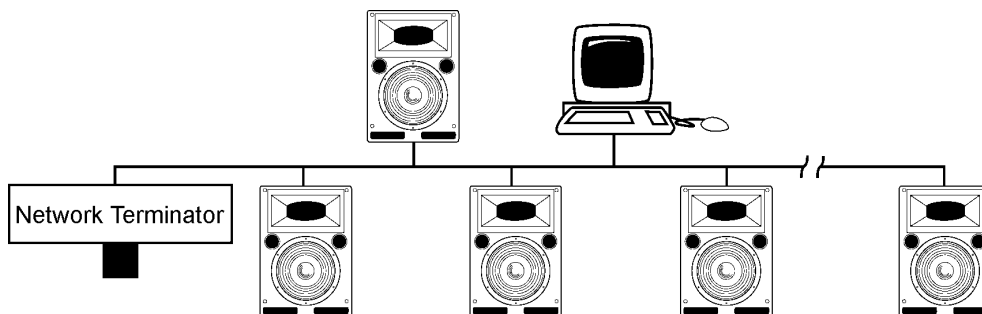
If you want to connect more than 62 loudspeakers you will need a network repeater. A network repeater increases the capacity of data traffic through an RMS network.

To increase the cable length you will need a network repeater. A network repeater increases the signal strength for long distances.

Pictured below are several proven wiring topologies. For information on wiring large systems please contact Meyer Sound.

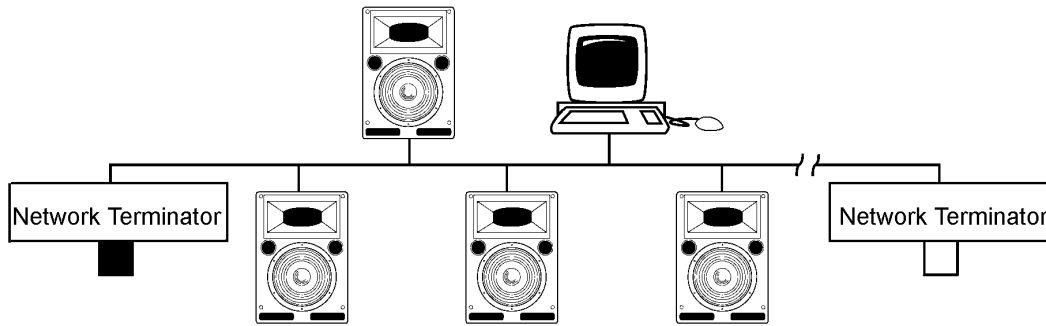


Loop Topology

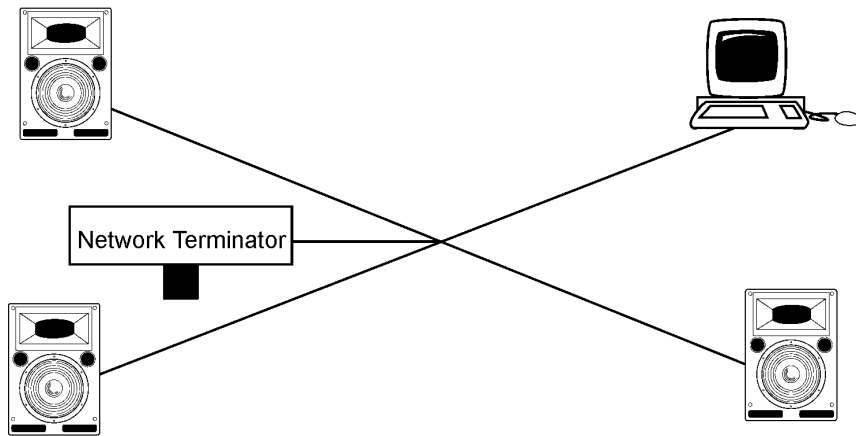


Single Termination Bus Topology

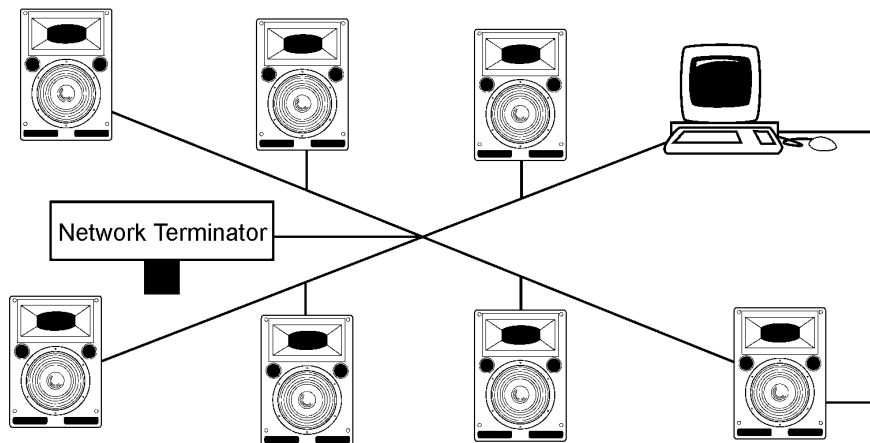
RMS™ Network Wiring Information



Double Termination Bus Topology



Star Topology



Mixed Topology

RMS™ Network Specifications

Maximum Loudspeaker Nodes:

Standard system-62;

With network repeater-125 (please contact factory for further information).

Cable Type:

16 AWG, : Belden 85102, 8471 (or equivalent) twisted pair, stranded, unshielded

22 AWG*,: Belden 8442 (or equivalent) twisted pair, stranded, unshielded

Maximum Network length without installation of repeater(s):

Free Topology, 22 AWG or 16 AWG cable, one 52.3 Ω type terminator:500 m (1640ft)

Bus Topology, 16 AWG cable, two 105 Ω type terminators: 2700m (8858ft)

Bus Topology, 22 AWG cable, two 105 Ω type terminators: 1400m (4593 ft)

Maximum Node-to-Node Distance:

Free Topology, 22 AWG cable: 400m (1312ft)

Free Topology, 16 AWG cable: (Belden 85102 or equivalent): 500m (1640ft)

Free Topology, 16 AWG cable (Belden 8471 or equivalent): 400m (1312ft)

Termination:

Free Topology (500m (1640ft)):one 52.3 Ω type terminator at any point

Bus Topology (500m (1640ft)):two 105 Ω type terminators (one on either end)

Connector Type: 2-wire Plug with recommended snap-on lock

Network Platform: Differential Manchester Encoding; Polarity Insensitive, Variable Topology

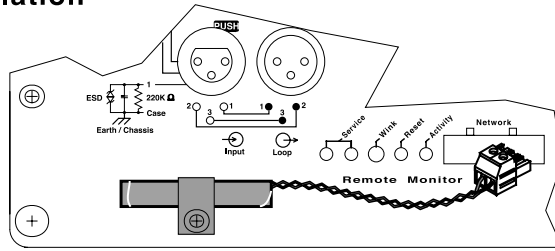
Transceiver: EMI: complies with FCC Part 15, Class A; UL recognized; VDE: EMI compliant

Data Rate: Standard System: 78Kb/s; Larger systems: contact factory

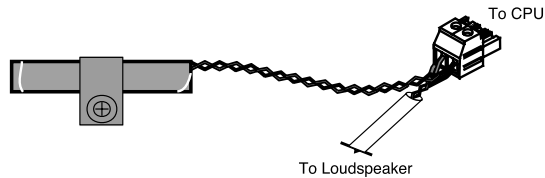
*Meyer Sound strongly recommends using 20 AWG cable (Belden 8205 or equivalent) for more robust mechanical network terminations. However, the minimum required cable for proper network operation is 22 AWG (Belden 8442 or equivalent).

Terminator Installation (Terminators shipped with RMS Host Station Peripheral Kit)

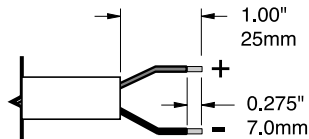
Loudspeaker Installation



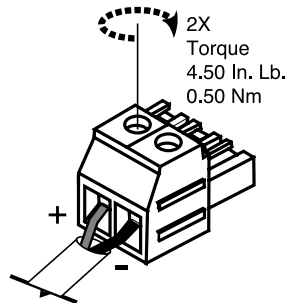
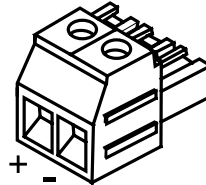
Server (CPU) Host



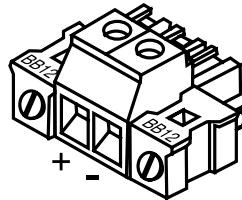
RMS Connector Assembly (Shipped with RMS-equipped Loudspeakers)



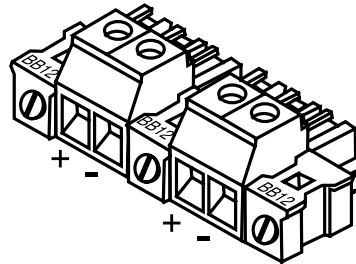
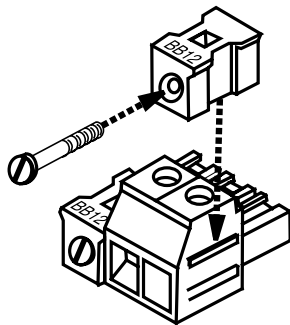
SERVER (CPU) HOST
No Locking Blocks are used



SINGLE SPEAKER TERMINATION

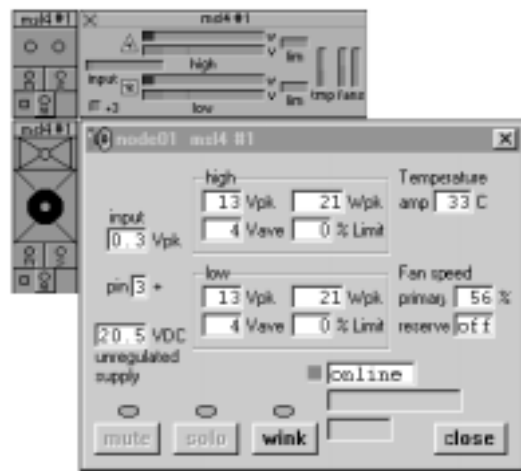


SPEAKER TERMINATION WITH
LOOP OUTPUT FOR SPEAKER
TO SPEAKER CONNECTION





FTR Network Repeater Operating Instructions



FTR Network Repeater Operating Instructions

Nov 1, 2000

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FTR-100 Network Repeater Operating Instructions

P/N: 05.033.075.12
DATE: 11.1.00
REV: A

Document Title: Operating Instructions for the FTR-100 Network Repeater.

Introduction

This document is distributed with the Meyer Sound Remote Monitoring System Network Repeater Kit (P.N. 40.033.084.01). This user's guide will illustrate how to incorporate the FTR-100 Network Repeater into your RMS Network topology. The FTR-100 Repeater is required if any of the following conditions are present:

- Your RMS Network exceeds 62 speakers (maximum of 124).
- Your total network cable length exceeds 500 meters using a free-topology.
- Your total network cable length exceeds 1400 meters using a doubly-terminated bus topology.

Please insert this documentation in the Additional Documents section of your RMS binder.

You should receive the following parts in the Network Kit:

1. **AC Adapter, 12VDC 1 Amp power supply** Meyer Sound Part Number 574.007.
2. **RMS FTR-100 Network Repeater** Meyer Sound Part Number 950.045
3. **2.5m Cordset** Meyer Sound Part Number 538.012
4. **Power Cord** Meyer Sound Part Number 538.009

What is a repeater?

A repeater is a network device that connects multiple segments of a network cable, re-times and regenerates the digital signals on the cable, and sends them on their way again. A repeater forwards all digital message signals in both directions, regardless of the destination or domain of the message.

The actions of a repeater allow you to increase the geographical coverage of your network. The FTR-100 has the capability of increasing your total RMS Network cable length by a factor of four.

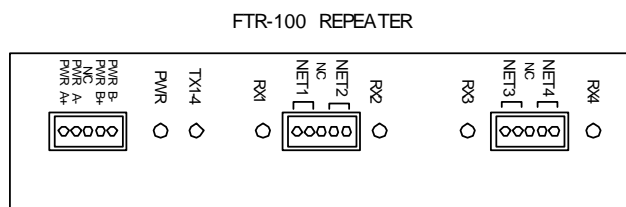
The repeater also allows for an increased number of loudspeaker "nodes" on a RMS Network. As described previously, the FTR-100 regenerates the RMS Network message. This regeneration allows for a more robust network-messaging construct, thus allowing more nodes on a single network.

Document Title: Operating Instructions for the FTR-100 Network Repeater.

Operational Description

The FTR is a four-channel network repeater. A message generated on any network segment to which the FTR is connected is rebroadcast on the three other channels.

The following figure shows the physical specifications and the front panel:



There are six status LEDs on the unit:

- The PWR LED is the power indicator. It is ON if power is properly supplied to the unit
- The other five LEDs give an indication of the amount of network traffic. The TX1-4 LED flashes whenever a message is transmitted by the repeater. The RX1, RX2, RX3, RX4 LEDs flash whenever a message is received on a particular channel.

For example, if a message is received on channel 1, the RX1 LED would flash, the message would be transmitted on the other channels (2, 3 and 4), and the TX1-4 LED would flash.

Installation

Mechanical Installation

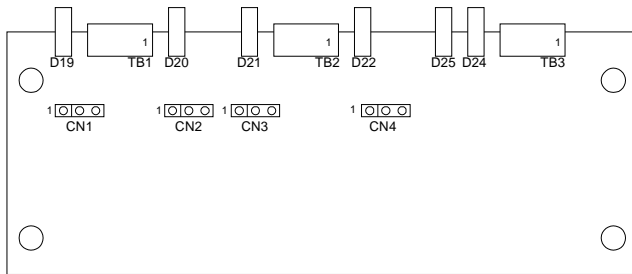
The FTR can be mounted on a wall or other surface using four #6 wood screws (or equivalent). It can be mounted horizontally with the terminal blocks facing down, or vertically with the terminal blocks on the right side. The FTR unit and associated wiring should be mounted and fastened securely, so that no stress is incurred. Do not install the FTR in a manner that would allow unanticipated disconnection.

Network Terminations

The FTR is capable of providing network termination if desired (consult the Logical Installation and Wiring Guide section of the RMS binder). As shipped, each channel on the FTR has 51 Ohm network termination resistors connected. This is the standard network termination required for the network. If no termination or 100 Ohm network terminations is required, the top must be removed and shorting jumpers reconfigured as shown following.

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Network termination can be changed by moving the shorting jumper on CN1, CN2, CN3, or CN4. The following figure and table describe the jumper positions:



Channel	No. Termination	5Ω Termination	100Ω Termination
Channel 1	CN4 No Jumper	CN4-jump 1 and 2	CN4-jump 2 and 3
Channel 2	CN3 No Jumper	CN3-jump 1 and 2	CN3-jump 2 and 3
Channel 3	CN2 No Jumper	CN2-jump 1 and 2	CN2-jump 2 and 3
Channel 4	CN1 No Jumper	CN1-jump 1 and 2	CN1-jump 2 and 3

Wiring

The FTR is wired using five position terminal blocks. The wiring pin-out for the FTR module is shown below.

Pin Description	Functionality
PWR A+	Power A+ positive supply connection
PWR A-	Power A- negative supply connection
N/C	No connection (Reserved)
PWR B+	Power B+ positive supply connection
PWR B-	Power B- negative supply connection
NET1	Network channel 1 connection
NET1	Network channel 1 connection
N/C	No connection (Reserved)
NET2	Network channel 2 connection
NET2	Network channel 2 connection
NET3	Network channel 3 connection
NET3	Network channel 3 connection
N/C	No connection (Reserved)
NET4	Network channel 4 connection
NET4	Network channel 4 connection



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Power A+ and Power A- are the power supply inputs. Connect the positive lead of the power supply to the terminal block Power A+ and the negative lead of the power supply to the terminal block Power A-.

If a redundant supply is required, connect it to Power B+ and Power B-. Connect the positive lead of the redundant power supply to the terminal block Power B+ and the negative lead of the power supply to the terminal block Power B-.

Network 1-4 are the network connections. Network 1 is the channel 1 network connection. Connect the first network twisted pair to the terminal block NET1 positions. The wiring is polarity-independent so it does not matter which wire in the pair is connected to which position on the terminal block. Connect the rest of the network twisted pairs to the other channels. Leave any unused channels unconnected.

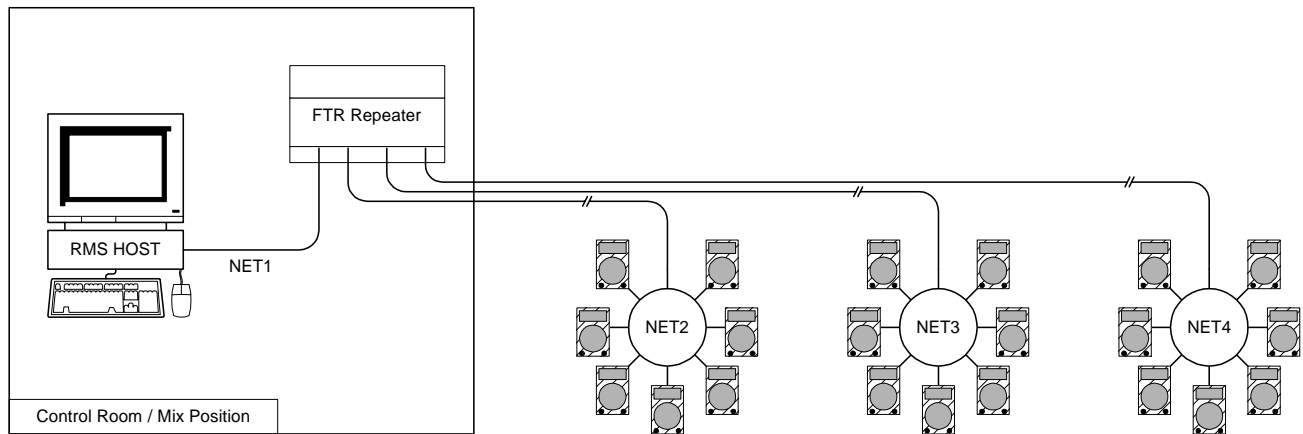
Universal Power Supply

The universal power supply included in the repeater kit allows for FTR operation around the world. The supply accepts any input voltage from 100 to 240VAC, and produces the required 12VDC output. The male IEC input allows for any locale-specific adapter to be used with the supply.

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RMS Integration

The following diagram depicts a recommended RMS Network setup using the FTR repeater:



The total length of each NET cannot exceed 500 meters using this free topology form. The FTR Repeater should be kept close to the RMS Host Station, in a contained environment free from possibilities of disconnection. In any case, the length of NET1 cannot exceed 500 meters.

More elaborate setups are possible, of course. When designing an RMS network, please review all of the available RMS literature on wiring, termination, and functionality. If in doubt, verify a design before incorporating it into a fixed installation.



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Appendix

FTR-100 Specifications

Power Supply	+12VDC to +24VDC +/- 10% @ 100mA
Data Communications	Differential Manchester Coding
Network Polarity	Polarity Insensitive
Transmission Speed	78 kilobits per second
EMI	Complies with FCC Part 15 Class A
Operating Temperature	-40°C to +60°C
Storage Temperature	-40°C to +85°C
Operating Humidity	25% to 90% @ 50°C non-condensing
Storage Humidity	0% to 95% @ 50°C non-condensing
Approximate Dimensions	245mm L x 634mm H x 143mm W (9.65" x 2.50" x 5.65")
Approximate Weight	1 lb. (625 g.)
Packaging	Aluminum enclosure

Documentation Reference

- RMS User's Guide (05.033.075.01)
- Self-Powered Loudspeaker Installation and Wiring Guide (05.033.075.07)
- The Connectors/ Terminator section of the RMS binder (Drawings 28.033.060 and 40.033.061)