

# MS300 ADVANCED USER'S GUIDE

An Advanced Guide to the McIntosh MS300 Music  
Server



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## About This Users Guide

This manual describes the advanced features of the McIntosh MS300 Music Server and is intended for McIntosh Dealers, custom installers, and experienced customers. Most customers should refer to the printed “*MS300 User’s Manual*” which is included with every MS300.

### ***What This Guide Covers***

This Guide describes the following advanced features:

- Additional Connection and Hookup Information
- MS300 Networking: Beyond Ethernet
- Registration
- Retail Demo Mode
- What is FLAC?
- Backup and Restore
- Advanced Utilities
- Remote and Keyboard Control Programming
- McIntosh RC-6 IR Key Codes
- Control Cable Pin-outs and Requirements
- External Control Specifications
- Optional Accessories
- Technical Support
- Troubleshooting

### ***Guide Updates***

The dynamic nature of an advanced convergence product like the MS300 allows software features to be updated automatically over the Internet. Because of this, features may change without notice. Please check the McIntosh web site <http://www.mcintoshlabs.com/support.aspx> for up to date information and periodic updates to this document.

## Additional Connection and Hookup Information

### *Digital Audio Inputs*

The MS300 defaults to the TosLink inputs for changer audio. If you are using the coax inputs it is necessary to manually change the digital inputs from TosLink to Coax using the Setup / Audio / Digital Input Preferences screen.

### *Audio Outputs*

The TosLink, Coax, and analog audio outputs are active when playing media from the internal hard drive or Internet Radio.

Both digital and analog connections must be made from the changer to the MS300 for the MS300 to output both digital and analog outputs.

This table shows which audio outputs are active for each type of audio source.

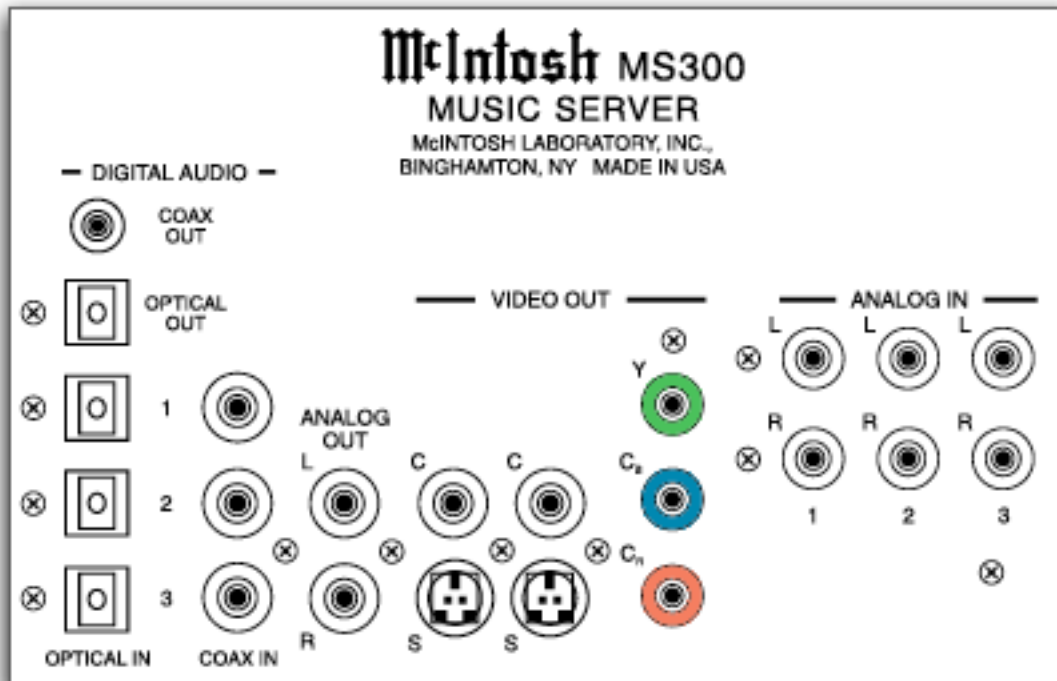
Audio Source	Analog Out	Digital TosLink Out	Digital Coax Out
	Hard Drive Audio	YES	YES
Changer Analog	YES		
Changer TosLink		YES	YES
Changer Coax		YES	YES
Internet Radio	YES	YES	YES

For example, connecting only the analog audio outputs of the changer to the MS300 will not provide digital audio on the digital outputs of the MS300.

## Video Outputs

The MS300 has several video output formats and connectors including:

- 2 S-Video
- 2 Composite Video
- 1 Component Video (480i interlaced standard definition)



**MS300 Video Output Connectors**

All video outputs are active at the same time, so you can use as many as you like without causing signal degradation.

The Component Video output will provide the best possible video quality for the MS300 User Interface, but will require that your video system has an available component input. The MS300 user interface is 720x480 (480i) and will appear stretched horizontally on a 16x9 display. If your display has the option to select different resolutions for each input, you can select another viewing resolution which eliminates the horizontal distortion.

One of the S-Video outputs is typically used for an optional third party touch panel to provide the user interface directly on the touch panel. The other S-Video output can be used if the installation has an available S-Video input or for a distributed multi-room installation.

The two composite outputs are typically used for Multizone distribution through a McIntosh A/V Control Center and/or A/V Multizone Control System.

### **RS-232 Connections**

External disc changers are controlled via two-way serial protocols using RS-232 serial cables. You should use COM ports 1, 2, and 3 for each external disc changer.

COM port 4 is to be used for connecting an external modem or to interface with a third party control system such as AMX or Crestron.

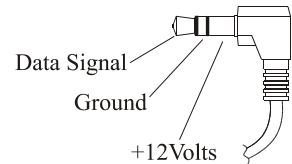
Note: You should use the Ethernet control system for controlling the MS300 from a third party control system whenever possible. Using the Ethernet control system frees up COM port 4 for other purposes, allows much longer distances between the MS300 and the control system, and provides a much faster path for data transfer.

### **External Modem Connections**

Use of an external modem for connecting to the Gracenote™ disc lookup services should only be used if a broadband connection is not available. Any external modem, which supports the standard AT Hayes command set and supports a serial connection (RS-232), will work. USB modems will not work. Contact McIntosh Technical Support for more information on compatible modem options.

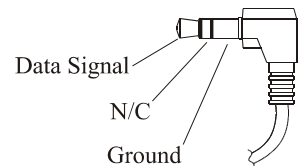
### **IR Connection**

The IR Port uses a 1/8 inch stereo mini phone plug and allows the connection of other brands IR Sensors to the MS300. The IR input jack provides 12V power.



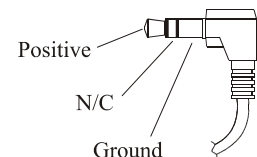
### **Data Port Connection**

The MS300's Data Port Input receives Remote Control Signals. Use a 1/8 inch stereo mini phone plug to connect to the Data Port Outputs on McIntosh A/V Control Units.



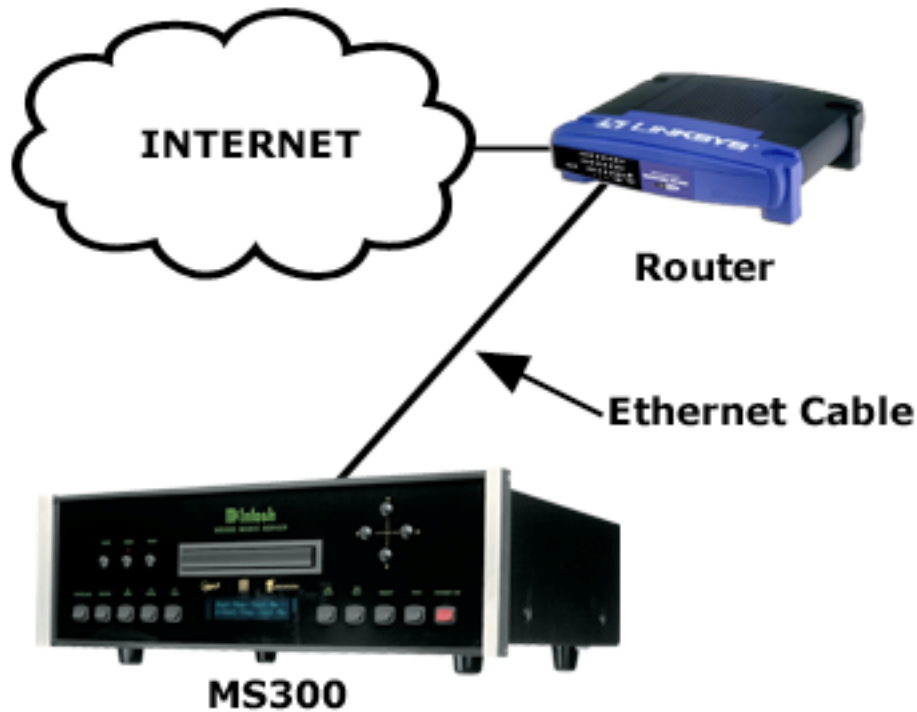
### **Power Control Connection**

The MS300's Power Control Input accepts a 5 volt (12 volt compliant) Power On/Off signal. Use a 1/8 inch stereo mini phone plug to connect to the Power Control Output on other McIntosh Components.



## ***Ethernet Connections***

The Ethernet jack on the back panel of the MS300 accepts any standard twisted pair CAT5 Ethernet cable. If you are connecting the MS300 to a home network, you typically connect a standard Ethernet cable from your Ethernet router or hub to the MS300.



There are different grades, or categories, of twisted-pair cabling. Category 5 is the most reliable and widely compatible, and is highly recommended. It runs easily with 10Mbps networks, and is required for 100Mbps networks. You can buy Category 5 cabling that is pre-made, or you can cut & crimp your own.

Category 5 cables can be purchased or crimped as either straight-through or crossed. A Category 5 cable has 8 thin, color-coded wires inside that run from one end of the cable to the other. Only wires 1, 2, 3, and 6 are used by Ethernet networks for communication. Although only four wires are used, if the cable has 8 wires, all the wires have to be connected in both jacks.

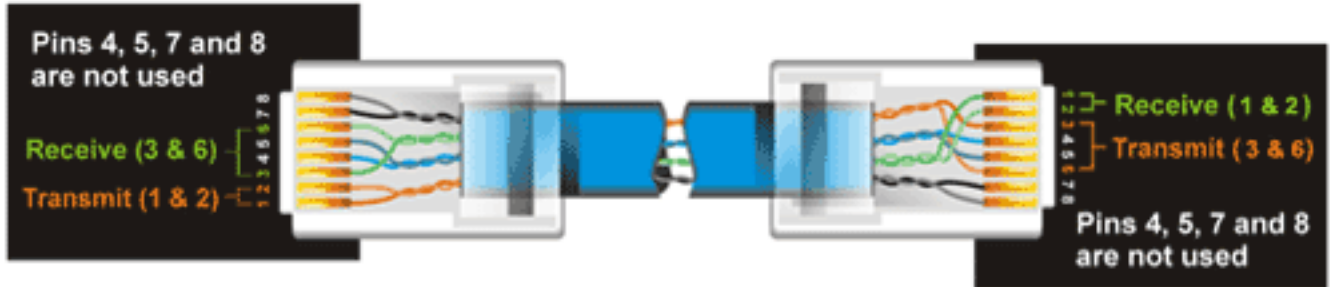
Straight-through cables are used for connecting computers to a hub. Crossed cables are used for connecting a hub to another hub (there is an exception: some hubs have a built-in uplink port that is crossed internally, which allows you to uplink hubs together with a straight cable instead).



In a straight-through cable, wires 1, 2, 3, and 6 at one end of the cable are also wires 1, 2, 3, and 6 at the other end. In a crossed cable, the order of the wires change from one end to the other: wire 1 becomes 3, and 2 becomes 6.

To figure out which wire is wire number 1, hold the cable so that the end of the plastic RJ-45 tip (the part that goes into a wall jack first) is facing away from you. Flip the clip so that the copper side faces up (the springy clip will now be parallel to the floor). When looking down on the coppers, wire 1 will be on the far left.

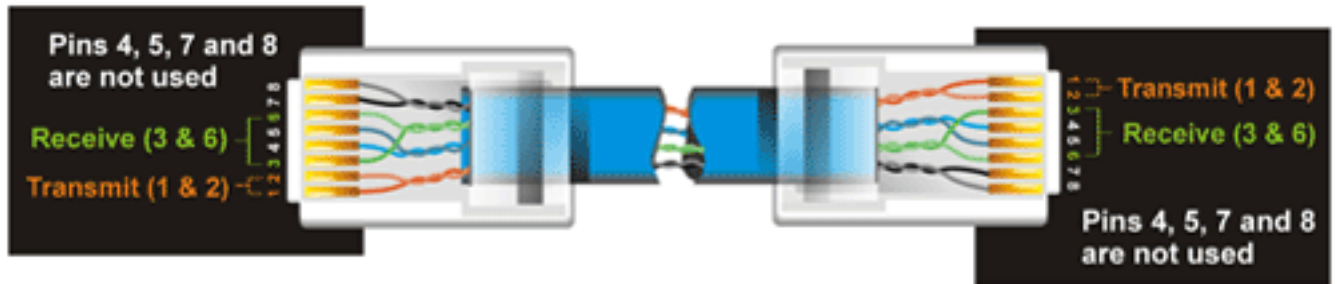
CAT5 cabling should not exceed 100 meters. The following drawing depicts the typical wiring scheme for CAT5. For more information about wiring an Ethernet network, please refer to the [Linksys web site](#).



Pin number	Wire Color
Pin 1 ==>	Orange/White
Pin 2 ==>	Orange
Pin 3 ==>	Green/White
Pin 4 ==>	Blue
Pin 5 ==>	Blue/White
Pin 6 ==>	Green
Pin 7 ==>	Brown/White
Pin 8 ==>	Brown

Crossed-Over		
Wire		Becomes
1	→	3
2	→	6
3	→	1
6	→	2

Pin number	Wire Color
Pin 1 ==>	Green/White
Pin 2 ==>	Green
Pin 3 ==>	Orange/White
Pin 4 ==>	Blue
Pin 5 ==>	Blue/White
Pin 6 ==>	Orange
Pin 7 ==>	Brown/White
Pin 8 ==>	Brown



Pin number	Wire Color
Pin 1 ==>	Orange/White
Pin 2 ==>	Orange
Pin 3 ==>	Green/White
Pin 4 ==>	Blue
Pin 5 ==>	Blue/White
Pin 6 ==>	Green
Pin 7 ==>	Brown/White
Pin 8 ==>	Brown

Straight-Through		
Wire		Becomes
1	→	1
2	→	2
3	→	3
6	→	6

Pin number	Wire Color
Pin 1 ==>	Orange/White
Pin 2 ==>	Orange
Pin 3 ==>	Green/White
Pin 4 ==>	Blue
Pin 5 ==>	Blue/White
Pin 6 ==>	Green
Pin 7 ==>	Brown/White
Pin 8 ==>	Brown

## **External Changer Connections**

There are a few general rules to follow when connecting changers to your MS300...

### **Changer Types**

- Changers from different Manufacturers **can not** be mixed.
- Sony CD and DVD/CD changers **can not** be mixed.
- Different models of Sony CD changers may be mixed.
- Different models of Kenwood DVD changers may be mixed.

### **Control Connections**

- Changer 1 should be connected to COM port 1 or S-Link port 1
- Changer 2 should be connected to COM port 2 or S-Link port 2
- Changer 3 should be connected to COM port 3

### **Digital Audio Connections**

- Changer 1 should be connected to TosLink or Coax Digital in 1
- Changer 2 should be connected to TosLink or Coax Digital in 2
- Changer 3 should be connected to TosLink or Coax Digital in 3

### **Analog Audio Connections**

- Changer 1 should be connected to Analog Audio in 1
- Changer 2 should be connected to Analog Audio in 2
- Changer 3 should be connected to Analog Audio in 3

### **Sony CD Mega Changer Hookup**

- Up to two Sony 200, 300 or 400 disc changers may be connected via S-Link cables (1/8" mono or stereo mini)
- S-link cable must 15' or less
- All audio outputs from changers are connected to the MS300 (do not daisy chain)
- TosLink cables are required for digital audio connections to the MS300 (Sony CD Mega Changers do not support Coax digital outputs)
- The analog audio connection is required when recording from external changers
- Set each changer to address CD1
- Set 300 and 400 disc changers to Control A1-II
- Changers must be in Continuous and All Disc modes

### **Sony DVD/CD Changer Hookup**

- Up to three Sony DVP-CX777ES 400 disc changers may be connected via individual RS-232 cables.
- An RS-232 cable is a standard DB9 null modem cable (not included with the changer)
- All audio outputs from changers should be connected to the MS300
- The analog audio connection is required when recording from external changers

- Set each changer to address Command Mode 1.

### Kenwood DVD/CD Changer Hookup

- Up to three Kenwood DV-5900 or DV-5050 400 disc changers may be connected via individual RS232 cables (do not daisy chain)
- Connect a 1/8" mono or stereo mini connector from the DVD Control jack on each changer to the corresponding S-Link/IR Input jack on the back of the MS300
- An RS-232 cable is a standard DB9 null modem cable (not included with the changer)
- All audio outputs from changers should be connected to the MS300 (do not daisy chain)
- The analog audio connection is required when recording from external changers
- Set each changer to address MAIN.
- Only CDs in Kenwood changer will appear in the MS300 Music Guide.

### Pioneer DVD/CD Changer Hookup

Note: The Pioneer FV-07 is ONLY supported for CDs with the MS300 Music Server. The Pioneer FV-07 can not be used for Movie storage.

- Up to three Pioneer DV-F07 300 disc changers connected via individual custom RS232 cables.
- The RS-232 cables are DB9 to DB15.
- All audio outputs from changers should be connected to the MS300 (do not daisy chain)
- The analog audio connection is required when recording from external changers
- Only CDs in Pioneer changer will appear in the MS300's Music Guide

Pin-out for the MS300 RS-232 DB-9 to DB-15 control cable

DB-9 Female (MS300 side)	DB-15 Male (Pioneer Side)
Pin 5 Ground	Pin 1 Ground
Pin 2 RD	Pin 2 TD
Pin 3 TD	Pin 3 RD

## MS300 Networking: Beyond Ethernet

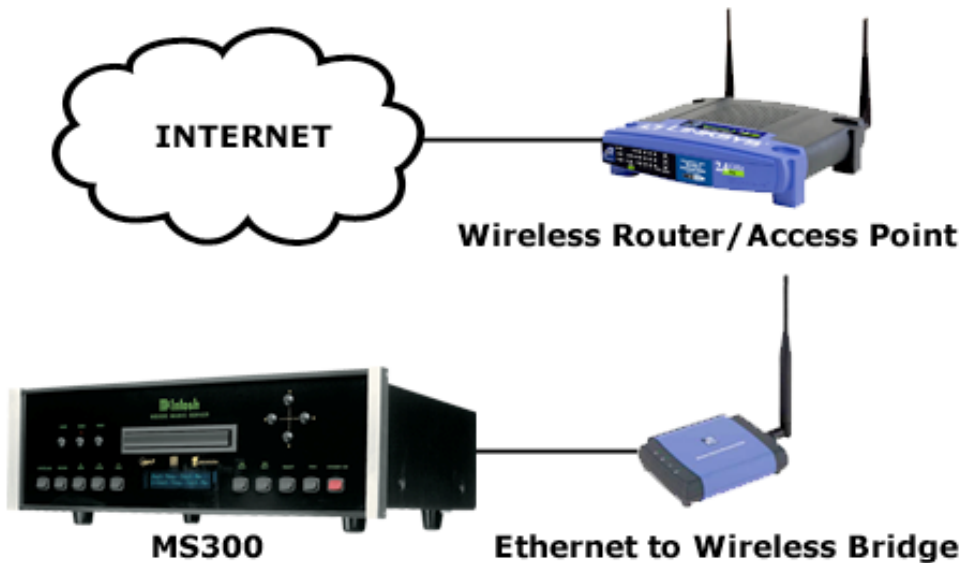
The MS300 contains built-in Ethernet networking and optional external dialup modem support. In addition to these types of network connections, you may want to integrate the MS300 into other networks such as 802.11 Wireless (WiFi), Powerline, or HomePNA (HPNA).

Although there are dozens of brands on the market, McIntosh recommends and supports [D-Link](#) and [Linksys](#) home networking products because of their wide availability and installed base within our market. The [Linksys web site](#) is an excellent source for information on building home networks.

### Wireless Networking

Wireless Networking, commonly referred to as “WiFi” or 802.11a/b/g, is defined as a local area network that uses 2.4GHz radio signals to transmit and receive data over distances of a few hundred feet using the ethernet protocol.

The MS300 can be added to a wireless home network using an external Ethernet to Wireless adapter such as the Linksys Wireless Ethernet Bridges. The Ethernet Bridge will “bridge” the gap between the MS300’s Ethernet port and the home network’s wireless access point. When used with a broadband Internet connection, this networking configuration effectively converts the MS300’s wired Ethernet signals to travel wirelessly to the home network’s wireless access point, then onto the Internet.



**MS300 Connected to a Wireless Network**

Be sure to use an adapter which supports the version of 802.11 (A, B, or G) that the user’s Wireless Access Point supports. Refer to the Access Point’s documentation for more information.

## ***Powerline Networking***

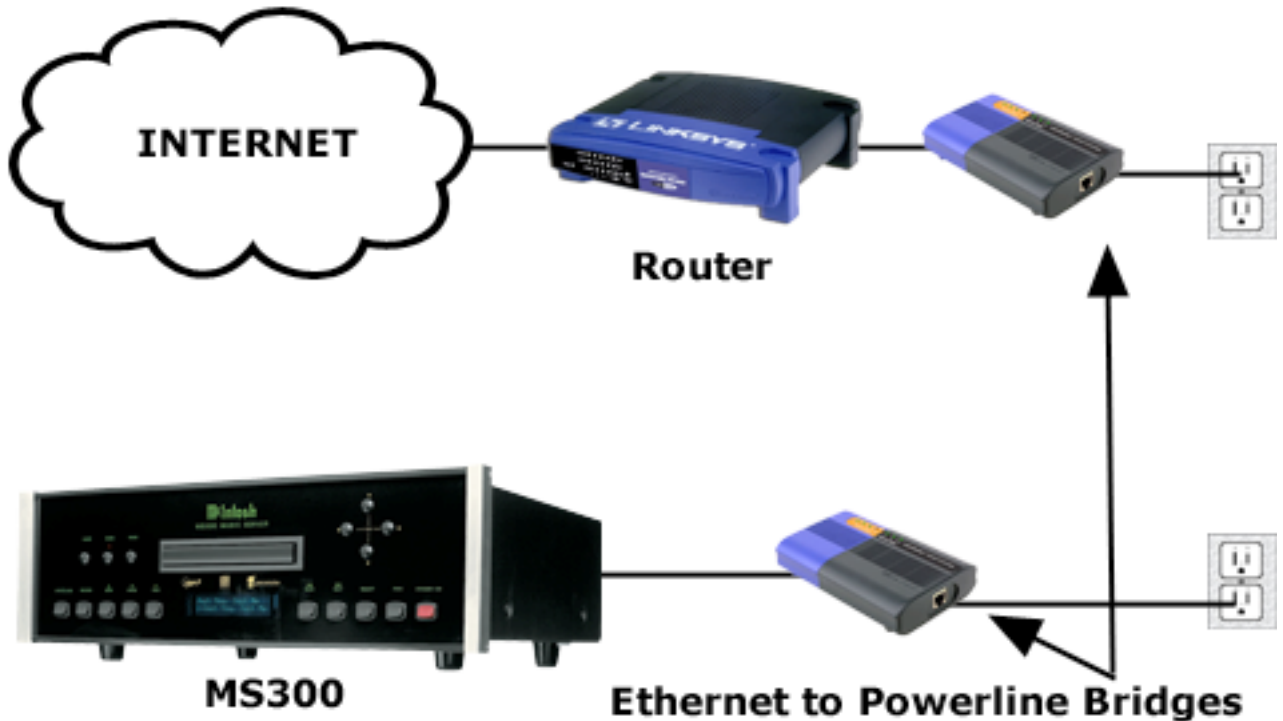
Powerline networking has existed in a few forms in the past, the latest specification is called HomePlug and runs at 14Mbps. HomePlug uses your existing home electrical wiring to transfer data.

HomePlug does not interfere with existing electrical equipment or home automation devices like X-10, CEBus, and LONworks. HomePlug also encrypts all data with 56bit DES encryption to ensure that neighbors can not eavesdrop on your network traffic.

Note: Encryption is usually not enabled by default and must be 'turned on' using software provided by the devices manufacturer.

The HomePlug specification incorporates a technology called PowerPacket. This new technology is what makes HomePlug different from the old powerline networks. PowerPacket eliminates noise from electrical appliances like hair driers and televisions plus it offers security. For more information on Powerline Networking, please visit the [HomePlug Official Site](#)

The MS300 connects to a Powerline network using a Powerline to Ethernet Bridge. The Powerline to Ethernet Bridge will “bridge” the gap between the MS300’s Ethernet port and the home Powerline network. When used with a broadband Internet connection, this networking configuration effectively converts the MS300’s wired Ethernet signals to travel over the home’s Powerline network, then onto the Internet.



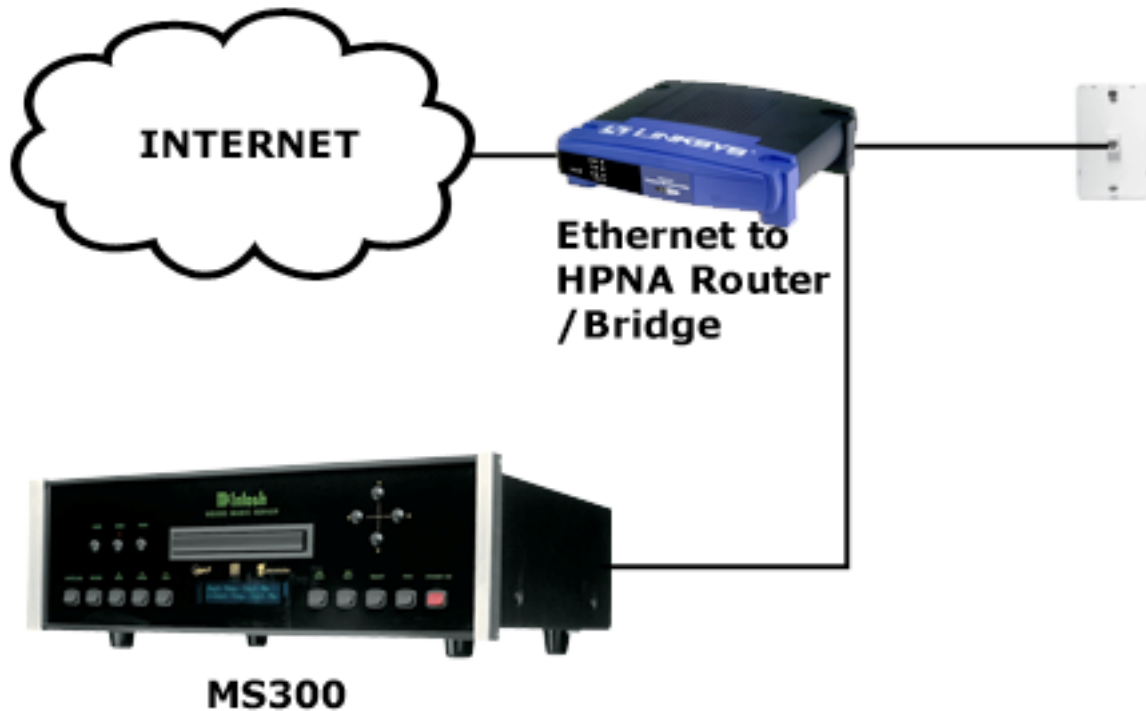
**MS300 Connected to a Powerline Network**

## ***HPNA Networking***

HPNA, sometimes called HomePNA or PhoneLine networking, uses existing phone lines to connect your computers. It does not interfere with voice operations or DSL on existing live telephone lines. HPNA networks, DSL and voice communications can happen on the SAME phone lines simultaneously.

HPNA 1.0 was met in the industry with excitement but limited success. 2.0 brought the speed up to a good level and brought the price down too! Since then HPNA 2.0 has been adopted by almost all of the home network manufacturers. Network adapters, routers and bridges are all available.

The MS300 connects to an HPNA network using an HPNA to Ethernet Bridge. The HPNA to Ethernet Bridge will “bridge” the gap between the MS300’s Ethernet port and the HPNA home phoneline network. When used with a broadband Internet connection, this networking configuration effectively converts the MS300’s wired Ethernet signals to travel over the home’s phone line network, then onto the Internet.



**MS300 Connected to an HPNA Network**

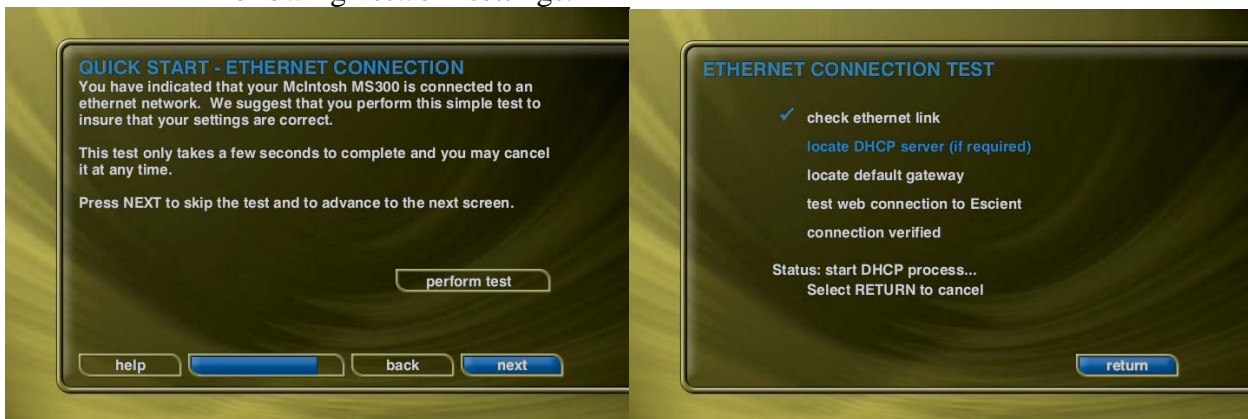
## Registration

Registering your MS300 is accomplished automatically when you go through the Quick Start process described in the User's Manual. Registration includes properly configuring your MS300 for Internet access and then connecting to the McIntosh servers to register your serial number and download the latest Internet Radio stations.

If you experience difficulty completing the registration process in QuickStart, follow these guidelines to make sure you have all of the required information and that you can make the proper connection to your Internet Service Provider and the McIntosh Servers.

### Testing a Broadband Connection

1. Check the Ethernet Network Link - The green LED next to the MS300's back panel Ethernet jack should be on when properly connected to an Ethernet network.
2. From the Ethernet Connection Quick Start screen, select the "perform test" button. This will start the Ethernet Connection test which will test the following network settings:



- a. The ethernet link to your router or hub.
- b. The DHCP addressing if you selected Dynamic IP Addressing.
- c. The connection to your default Gateway (your route to the Internet).
- d. The connection between your router and the McIntosh server.

If any of these tests fail, check your ethernet wiring with the proper test equipment, make sure your router is properly configured as a DHCP router, and that you can access the internet using the same network connection using a PC.

Check with your ISP or network administrator if you need assistance determining whether or not you should use DHCP IP addressing. If you are going to use a static IP address, it must be in the proper range assigned to your subnet. Again, check with your ISP or network administrator before using a static IP address.



## Testing a Dialup Connection

- An external Hayes compatible serial modem is required.
  - An analog phone line is required. Multiplexed digital phone lines are not supported.
  - An existing Internet Service Provider (ISP) account is also required – or you can sign up for a new AOL account by following the on-screen instructions.
1. Check the phone line connection – using a standard phone, make sure there is a dial tone on the line.
  2. The modem should be automatically detected after you select “dialup” as the connection type. If it fails to be recognized, make sure that the modem is connected to COM port 4 of the MS300 using a serial cable. (USB modems are NOT supported)
  3. Make sure you have a valid dialup account and password. The username, password, and dialup access numbers should be obtained from your ISP. The larger ISPs will have local phone numbers for most areas in the US.
  4. Verify that the dialup account and password are valid by testing them on a PC connected to the same external modem. This will tell you if the account settings and modem are properly configured.
  5. The Quick Start Dialing Preferences screen allows you to set the preferences for your current location.



- a. Most calling methods these days will use “tone” or touch tone instead of pulse dialing.
  - b. Enter a prefix if you have to dial ‘9’ or some other number to access an outside line when using your phone system.
  - c. If your phone line has Call Waiting service, select the prefix to disable it from the “Disable Call Waiting” spin control. Typically, this will be \*70, in the US.
  - d. If you have voice mail service from your phone company that provides a beeping signal just before the dial tone is heard on your line, change “ignore dialtone” to YES. This will ignore the beeping signal which may prohibit some modems from dialing out when you have messages waiting.
6. Once you have verified all of the Dialing Preferences, you should test the dialup modem connection to the McIntosh servers. From the Dialing Preferences Quick

Start screen, select the “Test Connection” button. This will start the Dialup Modem Test which will test the following network settings:

- a. Phone line test will check that the modem is connected to a live phone line which provides a dial tone.
- b. The access number to the ISP using the first access number.
- c. The connection to the ISP using the negotiated protocols of your particular modem.
- d. The login and password for the user’s account.
- e. The connection to the McIntosh servers.

If any of these tests fail, check your modem and phone line wiring with the proper test equipment. Using the same modem and cables, test that you can access the internet using a standard PC.

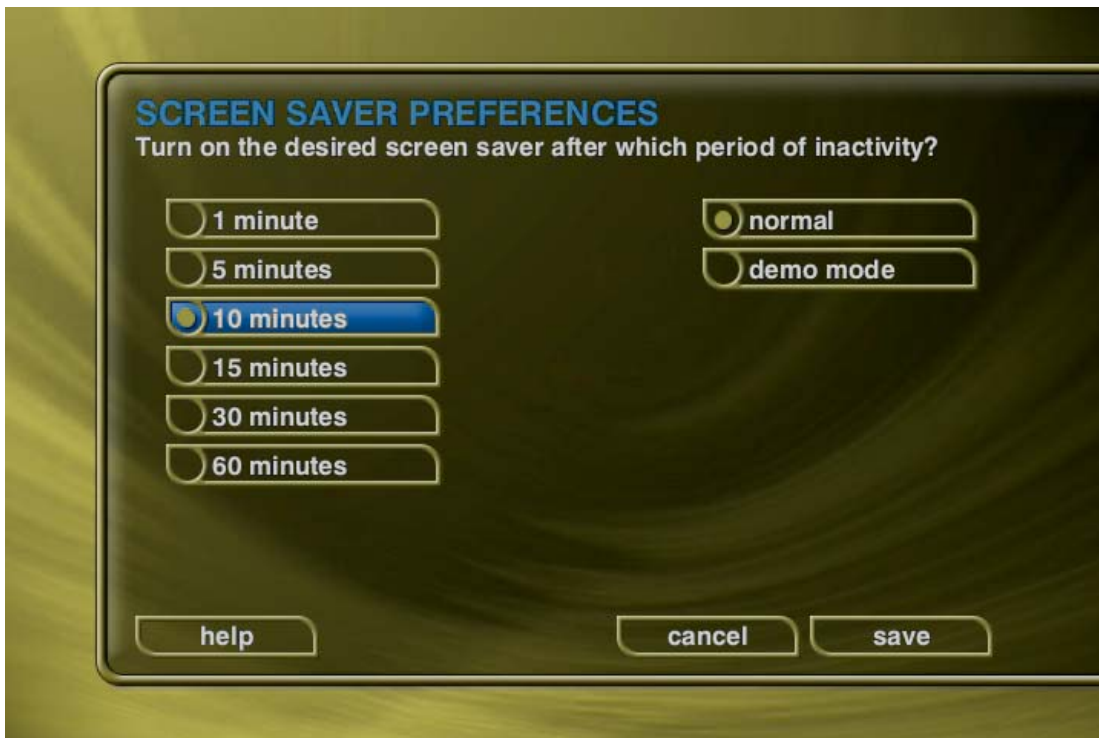
Static IP Addressing is not allowed with a dialup internet connection. Your ISP will supply a dynamic IP address once the connection is established and the user’s account has been authenticated.

## Retail Demo Mode

The MS300 has a **Retail Demo Mode** for use in retail display environments. The Retail Demo Mode (RDM) is a special screen saver that is activated during idle time. The RDM continuously displays key features and benefits of the MS300 product on the attached TV. Pressing any button on the remote will temporarily disable the RTD and allow the user to demo the product. After the specified idle time, the RDM will reactivate as the screensaver.

Follow these steps to enable the **Retail Demo Mode** in your MS300 display model:

1. Follow the Quick Start instructions to connect and register your demo MS300.
  2. When your MS300 is configured and you see the Music Guide, press the SETUP key on the remote.
  3. Select the General menu.
  4. Select the Screen Saver menu.
  5. Select the Demo Mode option and the number of minutes to wait before displaying the Demo Mode screen saver.
  6. Select the Save button.
- The RDM will be activated whenever the MS300 is idle for the specified period of time.
  - Do not set the idle time too high as the possibility of screen burn is increased with certain types of displays, particularly “Plasma” type displays.



**Screen Saver Preferences**

## What is FLAC?

FLAC stands for Free Lossless Audio Codec. Grossly oversimplified, FLAC is similar to MP3, but lossless, meaning that audio is compressed in FLAC without any loss in quality. This is similar to how Zip works, except with FLAC you will get much better compression because it is designed specifically for audio, and you can play back compressed FLAC files just like you would an MP3 file. The quality of a FLAC encoded file is an exact bit for bit copy of the original CD audio data. MP3 encoded files are not bit for bit copies of the original audio and therefore technically don't equal the quality of the original.

FLAC is freely available and supported on most operating systems, including Windows, "unix" (Linux, \*BSD, Solaris, OS X, IRIX), BeOS, OS/2, Mac OS X, and Amiga.

### ***Notable features of FLAC***

- **Lossless:** The encoding of audio (PCM) data incurs no loss of information, and the decoded audio is bit-for-bit identical to what went into the encoder. Each frame contains a 16-bit CRC of the frame data for detecting transmission errors. The integrity of the audio data is further insured by storing an MD5 signature of the original unencoded audio data in the file header, which can be compared against later during decoding or testing.
- **Fast:** FLAC is asymmetric in favor of decode speed. Decoding requires only integer arithmetic, and is much less compute-intensive than for most perceptual codecs. Real-time decode performance is easily achievable on even modest hardware.
- **Hardware support:** Because of FLAC's free reference implementation and low decoding complexity, FLAC is currently the only lossless codec that has any kind of hardware support.
- **Streamable:** Each FLAC frame contains enough data to decode that frame. FLAC does not even rely on previous or following frames. FLAC uses sync codes and CRCs (similar to MPEG and other formats), which, along with framing, allow decoders to pick up in the middle of a stream with a minimum of delay.
- **Seekable:** FLAC supports fast sample-accurate seeking. Not only is this useful for playback, it makes FLAC files suitable for use in editing applications.
- **Flexible metadata:** New metadata blocks can be defined and implemented in future versions of FLAC without breaking older streams or decoders
- **Suitable for archiving:** FLAC is an open format, and there is no generation loss if you need to convert your data to another format in the future. In addition to the frame CRCs and MD5 signature, flac has a verify option that decodes the encoded stream in parallel with the encoding process and compares the result to the original, aborting with an error if there is a mismatch.
- **Convenient CD archiving:** FLAC has a "cue sheet" metadata block for storing a CD table of contents and all track and index points. For instance, you can rip a CD to a single file, then import the CD's extracted cue sheet while encoding to

yield a single file representation of the entire CD. If your original CD is damaged, the cue sheet can be exported later in order to burn an exact copy.

- Error resistant: Because of FLAC's framing, stream errors limit the damage to the frame in which the error occurred, typically a small fraction of a second worth of data. Contrast this with some other lossless codecs, in which a single error destroys the remainder of the stream.

### ***What FLAC is not***

- Lossy. FLAC is intended for lossless compression only, as there are many good lossy formats already, such as Vorbis, MPC, and MP3 (see LAME for an excellent open-source implementation).
- SDMI compliant, et cetera. There is no intention to support any methods of copy protection, which are, for all practical purposes, a complete waste of bits. (Another way to look at it is that since copy protection is futile, it really carries no information, so you might say FLAC already losslessly compresses all possible copy protection information down to zero bits!) Of course, we can't stop what some misguided person does with proprietary metadata blocks, but then again, non-proprietary decoders will skip them anyway.

For more information on FLAC, please visit <http://flac.sourceforge.net/>

### ***Configuring the MS300 Server***

The MS300 is automatically enabled to serve MP3 and FLAC audio after it is plugged in and properly configured for your network.

It is recommended that you give each of your MS300 servers a unique name that describes its location using the **SERVER SETTINGS** screen which can be accessed from **Setup/Network /Server Settings**. Names like “LivingRoom”, “HomeTheater”, “MyMusicServer” are all good examples.

Do not use spaces in the MS300 Server Name.



**MS300 Server Name screen**

Optionally, you can assign a password for web access to the MS300. This password is independent from the Parental Controls password and is used to limit access to the MS300’s web server from any standard web browser on your network. If a password is entered here, the user will be asked to enter it when connecting to the MS300 from their PC. This password is provided to protect access to your MS300 through the standard HTTP port 80 on your subnet.

## Backup and Restore

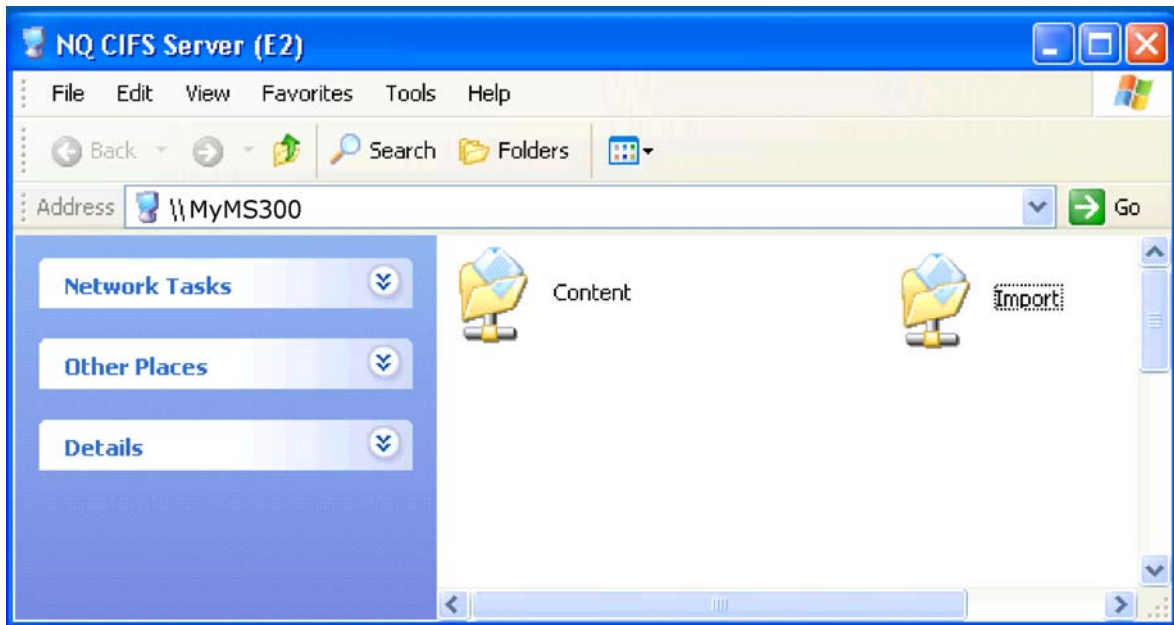
### ***MS300 Music Backup***

It is possible to backup and restore the music contents of the MS300 using the CIFS or “Windows” Networking feature. Backup is accomplished by mounting the MS300 onto your PC or Mac desktop and using your computer’s backup software.

You can also backup the music files to any standard media which your PC supports, such as: DVD+/-R/W, CD-R/RW, or external hard drive.

There are several methods and tools for backup your MS300’s music content. You will have to determine which method is best for you and your customers. One such method involves attaching an external FireWire or USB hard drive to your PC and backing up your Content directory by using a simple drag and drop from the Content directory to the external drive or using more elaborate features provided by a third party backup software product such as Dantz Retrospect. A free trial of this software is provided by Dantz for both Mac and Windows users. Please visit the Dantz web site for more details:

<http://www.dantz.com/en/products/personal.shtml>



Only the music files are available in the Content folder. Playlists, Setup information, and Internet Radio stations are NOT available for backup at this time.

A full 300 GB backup could take 2.5 days to complete using a standard 10/100 baseT Ethernet network. It is not recommended that you use your MS300 to play music while a backup is in progress as this will cause the backup to take longer to complete.

### ***MS300 Music Restore***

You can restore music to the MS300 using the same method used for importing audio files into the MS300. Restore and Import both use the CIFS Networking feature to add audio files to the MS300. Simply drag your music files to the Import directory and let the MS300 import the audio files.

Note: This may take several days for a large music collection!

Upon Import, the MS300 will rebuild the internal database based on the music file's ID3 tag information.

### ***About ID3 Tags***

All MP3 and FLAC files should have the proper ID3 tags in each file in order for the MS300 to properly add each music file to its internal Library.

The following ID3 tag formats are supported by the MS300:

- ID3v1.0
- ID3v1.1
- ID3v2.2.0
- ID3v2.3.0

Use an MP3 Tag Editor (such as iTunes) to change the ID3 tags to a supported format before importing into the MS300. If your MP3 files originated from your MS300, they already have the proper ID tags.

Cover art will be imported into the MS300 as long as the cover image is properly embedded into the ID3 tag. Again, use an MP3 Tag Editor on your computer to add cover art images to each MP3 file prior to importing.



## Advanced Utilities

The MS300 has several Advanced Utilities which are intended for use by experienced installers or when instructed by McIntosh Tech Support engineers. The Advanced Utilities include:

- Restore Factory Defaults
- Rebuild Databases
- Hardware Re-registration
- Lookup All Covers

To reduce the possibility that these tools are inadvertently accessed by inexperienced users, the Advanced Utilities menu is hidden from the user.

To access the Advanced Utilities Menu:

1. Go to the Main Setup Menu
2. Enter “8020” on the MS300 remote control.
3. The Advanced Utilities Menu is displayed.



**Advanced Utilities Menu**

## ***Restore Factory Defaults***

The Restore Factory Defaults feature is used to restore the MS300 Music Server to its original factory settings. This allows you to completely erase all user preferences and settings and reconfigure the unit for the first time.

Since this is a destructive feature, two levels of confirmation dialogs are used to confirm that you really wants to do this.



Once the Restore Factory Defaults feature is initiated, the user will not be able to stop the process and all of their settings, music, and preferences will be deleted and the MS300 will be restored to its original software version. You should perform a manual Software Update after a Restore Factory Defaults to update the MS300 to the most recent software version.

## ***Force Re-Registration***

The Re-registration function will reset the internal registration to the default settings, force the unit to reboot, and run the Quick Start configuration software.



Do not perform a re-registration unless instructed to do so by McIntosh Technical Support!

Upon power up, you must complete the Quick Start registration process again, which will in turn cause the unit to re-register with the McIntosh Internet servers, at the end of the process. An internet connection is required to complete the re-registration process.

## ***Library Index Rebuild***

The Library Index utility is used to rebuild the database index files in the unlikely event that your database becomes corrupt by a power failure or other unknown cause. The MS300 will go through each database entry for music, and radio and reconstruct the correct indices.

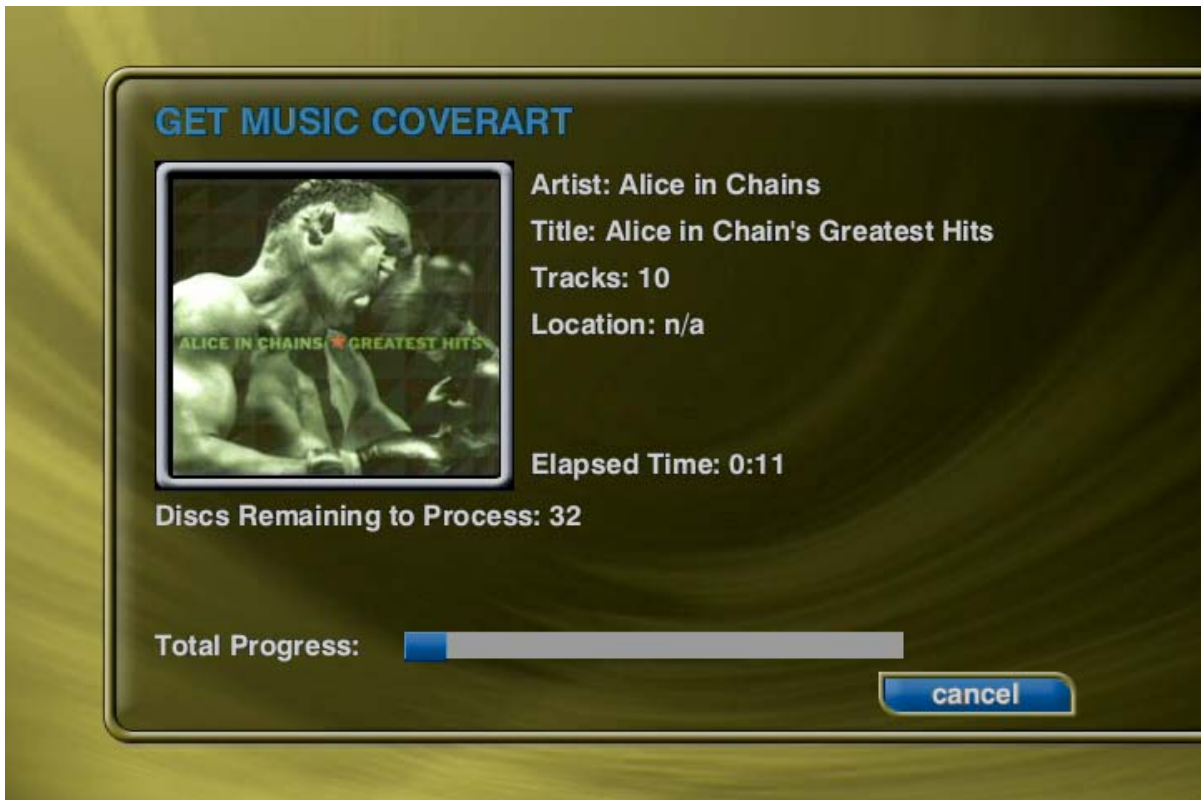
- You should only run this utility when instructed to do so by McIntosh Technical Support personnel.
- Once Rebuild Databases starts, you must wait until it completes, which could be several hours for a large media collection.



**Rebuild Databases Progress Screen**

## Lookup All Covers

The Lookup All Covers feature is to be used by customer service in the unlikely event that a system failure causes the cover art links to become corrupt. You will be asked to confirm the execution of this feature because it performs a permanently destructive action by replacing every custom cover, then attempts to download new covers over the Internet connection.



Lookup All Covers Screen

## Remote Control Programming

The MS300 remote is a “Universal Remote” which can control up to eight different components including four MS300 Music Servers. The MS1, MS2, MS3, and MS4 keys are used to control MS300 Music Servers while the TV, CBL, RCV, and DVD keys can be setup to control other devices.



### Controlling One or More MS300s

The MS1, MS2, MS3, and MS4 keys can be programmed to control multiple MS300 Music Servers. This feature is also useful for controlling multiple MS300s located at the same physical location or on the same IR distribution system.

There are two steps to controlling multiple MS300 Music Servers:

1. Setup the remote to transmit the corresponding code bank
2. Setup the MS300 to receive or listen for a specific code bank.

Setting up the remote to transmit one of the four code banks is as easy as pressing the MS1, MS2, MS3, or MS4 keys. Pressing one of these keys selects the one of the four MS300 code banks. Next you need to tell each MS300 which bank you want it to listen to. All MS300s ship from the factory assigned to listen for codes on the MS1 code bank.

Follow these steps to control a MS300 on the MS2 code bank.

1. Press the MS1 key on the remote to control a MS300 on the default bank.
2. Press the SETUP key to display the Setup Menu.
3. Select the External Control Menu.
4. Select the IR & Serial Menu.
5. Select the IR Remote Control Menu.
6. Select the MS2 radio button to tell the MS300 to listen to the MS2 code bank.
7. Select the SAVE button on the screen.
8. You will be instructed to press the MS2 key on the remote, then select the OK button.

You have set the MS300 to listen to the MS2 code bank. Repeat these steps to tell the MS300 to respond and listen to any of the four code banks.

## **Controlling Other Components**

### **Code Select Mode**

Follow these steps to control a device on the TV, CBL, RCV, and DVD keys:  
(For this example, we'll program the TV key)

1. Turn on the TV using the TV's front panel.
2. Press the TV key on the MS300 remote.
3. Press and hold the CODE SET key until the LED blinks twice, then release.
4. Locate the Manufacturer's Code for your brand of TV (see the end of this chapter)
5. Enter the first four-digit code for your TV using the numeric keys on the MS300 remote.
6. The LED on the remote should blink twice. If the LED did not blink twice, then repeat steps 2 through 5.
7. Aim the Remote at the TV and press PWR key once. It should turn off. If it does not respond, repeat steps 2-5, trying each code for your brand until you find one that works.

Repeat steps 1 through 7 for each component you want the Remote to control on the TV, CBL, RCV, and DVD keys.

### **Code Scan Mode**

If your device does not respond to the Remote after trying all codes listed for your brand, or if your brand is not listed at all, try scanning for your code.

Follow these steps to scan for a code for your TV:

1. On the Remote, press TV once.
2. Press and hold CODE SET until the LED blinks twice, then release CODE SET.
3. Enter 9 - 9 - 1. The LED will blink twice.
4. Aim the remote control at the TV and slowly alternate between pressing PWR and TV. Stop when the TV turns off. NOTE: In the scan mode, the remote will send IR codes from its library to the selected device, starting with the most popular code first.
5. When you find a working code, press CODE SET once to lock in the code.

To search for the codes of your other components, repeat steps 1 through 5, but substitute the appropriate key (TV, CBL, RCV, DVD) for the component that you are searching for.

### **Code Check Mode**

If you set up the remote using the Code Scan Mode, you may need to find out which four-digit code is operating your equipment.

Follow these steps to find which code is operating your TV:

1. Press the TV key.

2. Press and hold CODE SET until the LED blinks twice, then release CODE SET.
3. Enter 9 - 9 - 0. The LED will blink twice.
4. To view the code for the first digit, press 1 once. Wait 3 seconds, count the LED blinks (e.g., 3 blinks = 3) NOTE: If a code digit is "0", the LED will not blink.
5. Repeat step 4 three more times for remaining digits. Use 2 for the second digit, 3 for the third digit, and 4 for the fourth digit.

To check for the codes of your other components, repeat steps 1 through 5, but substitute the appropriate key (TV, CBL, RCV, DVD) for the component you are checking.

To exit Code Check Mode, press the CODE SET key once.

### Re-Assigning Device Keys

The Remote can be set up to control a second TV, receiver or any combination of eight home entertainment components. For example, to have the Remote control a TV, a Cable Converter, and two DVD players, you can reassign an unused SOURCE key to operate the second DVD player.

Follow these steps to re-assign the CBL key to control a second DVD player:

1. Press and hold CODE SET until the LED blinks twice, then release CODE SET.
2. Enter 9 - 9 - 2. The LED will blink twice.
3. Press the DVD key, then press the CBL key.
4. The CBL key is now ready to be programmed for a DVD player.

To reassign other device keys, repeat steps 1 through 4 by substituting the key sequence from the below chart for the most popular components.

When a reassignment is done, the LED will blink twice to confirm your choice. At that time, you will need to program the Remote to control the new component, following the instructions above.

The following devices can be assigned to the TV, CBL, RCV, and DVD source mode buttons on the McIntosh Remote Control.

Source Button	Device Assignment
TV	TV
CBL	Cable, Video Accessories, Satellite, DSS
RCV	Amplifier, Tuner, Phono, Misc. Audio, CD, Home Automation, MD
DVD	VCR, Audio Cassette, DVD, LDP, DAT, PVR

## ***Changing the Volume Lock***

The remote is preset to control volume through your TV while in the TV, CBL, and DVD modes. However, in an Audio mode (i.e. RCV, MS1, MS2, MS3, MS4), you have separate control of your audio component's volume.

Follow these steps to control the volume of the component instead of the TV.

1. Press and hold CODE SET until the LED blinks twice, then release CODE SET.
2. Enter 9 - 9 - 3 and then press any mode key once (except TV). The LED will blink twice.
3. Now, whenever you press VOL +, VOL -, or MUTE, the volume will be controlled by the current mode.

Follow these steps to control the volume of the TV when in other modes (factory default).

1. Press and hold CODE SET until the LED blinks twice, then release CODE SET.
2. Enter 9 - 9 - 3 and then press TV. The LED will blink twice.
3. Now, whenever you press VOL +, VOL -, or MUTE on the Remote, volume will be controlled by your TV.

## ***Resetting the MS Source Buttons***

The MS1, MS2, MS3, and MS4 source buttons are preprogrammed at the factory with the correct codes to control four MS300 Music Servers. If you changed these buttons to control other devices, you will have to reset the MS Source buttons back to the original codes in order to control the MS300 again.

Follow these steps to program the buttons back to their factory states:

1. Press the MS1, MS2, MS3, or MS4 source button to be re-programmed.
2. Press & Hold the "Code Set" button on the remote until the LED flashes twice.
3. Enter "987" using the remote's numeric keypad. The LED should again flash twice.
4. Enter the factory reset code which corresponds to the MS button being reset:
  - "0082" for MS1
  - "0083" for MS2
  - "0084" for MS3
  - "0085" for MS4
5. The LED will again flash twice indicating the programming was successful.

Repeat these steps for each MS300 in your system, selecting a different MS button for each.



## Using the Macro key

The Macro key is used to enter a command sequence of two or more IR commands. Macros are used to directly access any title, group, or station from the wireless keyboard, remote control, or an external IR control system.

### Direct Media Access IR Keyboard Definitions

Function	Multi-Key Combinations
Direct Play Mode	Macro, M, [play mode number], Enter
Direct Artist-Title	Macro, A, [artist-title access number], Enter
Direct Movie Title	Macro, V, [movie title access number], Enter
Direct iRadio Station	Macro, R, [iRadio access number], Enter
Direct Disc	Macro, C, [changer number], D, [disc number], Enter
Direct Track	Macro, T, [track number], Enter
Direct Playlist	Macro, P, [playlist access number], Enter
Direct Group	Macro, G, [group access number], Enter

### Direct Media Access IR Remote Definitions

Function	Multi-Key Combinations
Direct Play Mode	Macro, 1, [play mode number], Enter
Direct Disc	Macro, 2, [changer number], Macro, [disc number], Enter
Direct Artist-Title	Macro, 3, [artist-title access number], Enter
Direct Group	Macro, 4, [group access number], Enter
Direct Movie Title	Macro, 6, [movie title access number], Enter
Direct Playlist	Macro, 7, [playlist access number], Enter
Direct Track	Macro, 8, [track number], Enter
Direct iRadio Station	Macro, 9, [iRadio access number], Enter

The direct access numbers are available for all music and movie titles, playlists, groups, and radio stations. To view these numbers, press **SETUP** then select the **UTILITIES** menu and then **VIEW DIRECT IR NUMBERS**.

Note: If you do a lot of editing to your music and movie collection, these numbers may change. If you experience trouble with the Macro key feature, please check that the direct IR numbers are still correct under **SETUP**.

#### Example 1: Use the keyboard to play disc 14 in changer 1.

Press: **MACRO, C, 1, D, 1, 4, ENTER**

#### Example 2: Use the keyboard to play playlist number 5

Press: **MACRO, P, 5, ENTER**

**Example 3: Use the remote to play disc 14 in changer 1.**

Press: MACRO, 2, 1, MACRO, 1, 4, ENTER

**Example 4: Use the remote to play playlist number 5.**

Press: MACRO, 7, 5, ENTER

**Example 5: Use the remote to play the movie number 123.**

Press: MACRO, 6, 1, 2, 3, ENTER

## Manufacturer IR Codes

### AMPLIFIER CODES

GE 0078  
Harman/Kardon 0892  
JVC 0331  
Marantz 0892  
McIntosh 0619  
Optimus 0395  
Philips 0892  
Polk Audio 0892  
Realistic 0395  
Sony 0689  
Soundesign 0078  
Victor 0331  
Wards 0078  
Yamaha 0354

### CABLE BOX CODES

ABC 0003, 0017  
Americast 0899  
Bell South 0899  
General Instrument 0276, 0476,  
0810  
GoldStar 0144  
Hamlin 0009, 0273  
Jerrold 0003, 0276, 0476, 0810  
Memorex 0000  
Motorola 1106  
Pace 0237  
Panasonic 0107, 0000  
Paragon 0000  
Philips 0305, 0317  
Pioneer 0144, 0533, 0877  
Pulsar 0000  
Quasar 0000  
Regal 0273, 0279  
Runco 0000  
Samsung 0144  
Scientific Atlanta 0017, 0477,  
0877  
Starcom 0003  
Toshiba 0000  
Zenith 0000, 0525, 0899

### CD PLAYER CODES

Aiwa 0157  
Burmester 0420  
California Audio Labs 0029  
Carver 0157, 0179  
DKK 0000  
Denon 0003, 0873  
Emerson 0305  
Fisher 0179  
Garrard 0420  
Genexxa 0032, 0305  
Harman/Kardon 0157, 0173  
Hitachi 0032  
JVC 0072

Kenwood 0028, 0190, 0826,  
0037, 0626, 0681  
Krell 0157  
LXI 0305  
Linn 0157  
MCS 0029  
MTC 0420  
Magnavox 0157, 0305  
Marantz 0157, 0626, 0029  
Mission 0157  
NSM 0157  
Onkyo 0101, 0868  
Optimus 0032, 0468, 0420,  
0179, 0305, 1063, 0000,  
0037,0145  
Panasonic 0029  
Parasound 0420  
Philips 0157, 0626  
Pioneer 0032, 0468, 0305, 1062,  
1063  
Polk Audio 0157  
Proton 0157  
QED 0157  
Quasar 0029  
RCA 0053, 0032, 1062, 0468,  
0305, 0179  
Realistic 0179, 0420  
Rotel 0157, 0420  
SAE 0157  
Sansui 0157, 0305  
Sanyo 0179  
Scott 0305  
Sears 0305  
Sharp 0037, 0861  
Sherwood 1067  
Sonic Frontiers 0157  
Sony 0000, 0490  
Soundesign 0145  
Tascam 0420  
Teac 0420  
Technics 0029  
Victor 0072  
Wards 0053, 0157  
Yamaha 0036, 0888

### CONTROL CENTERS CODES

McIntosh 0619

### HOME AUTOMATION CODES

GE 0240  
One For All 0167  
Radio Shack 0240  
Security System 0167  
Universal X10 0167  
X10 0167

### PRAMPLIFIER CODES

McIntosh 0619

### VIDEO CODES

Panasonic 1120  
Pioneer 1010  
Sensory Science 1126  
Sharp 1010

### RECEIVER CODES

ADC 0531  
Aiwa 0121, 1405, 1089  
Capetronic 0531  
Carver 1089, 1189  
Denon 1160, 1104  
Harman/Kardon 0110  
JBL 0110  
JVC 0074  
Kenwood 1027, 0186, 1313,  
1569, 1570  
MCS 0039  
Magnavox 1089, 0531, 1189  
Marantz 1189, 1089, 0039  
McIntosh 0619  
Onkyo 0135  
Optimus 1023, 0186, 0531, 0670  
Panasonic 0039, 1518  
Philips 1089, 1189, 1269  
Pioneer 0150, 0531, 0630, 1023  
Proscan 1254  
Quasar 0039  
RCA 1254, 0531, 1023  
Sansui 1089  
Sharp 0186  
Sony 1158, 1058, 1258  
Soundesign 0670  
Sunfire 1313  
Technics 0039, 1308, 1518,  
1309  
Thorens 1189  
Victor 0074  
Yamaha 0176, 0186, 1176

### SATELLITE CODES

AlphaStar 0772  
Chaparral 0216  
Echostar 0775, 1005  
Expressvu 0775  
GE 0566  
General Instrument 0869  
HTS 0775  
Hitachi 0819  
Hughes Network Systems 0749,  
1142, 1749  
JVC 0775  
Magnavox 0722, 0724  
Memorex 0724  
Mitsubishi 0749

Next Level 0869  
Panasonic 0247, 0701  
Philips 1076, 1142, 0722, 0724,  
0749  
Proscan 0392  
RCA 0566, 0392, 0143, 0855  
Radio Shack 0869  
Samsung 1109  
Sony 0639  
Star Choice 0869  
Toshiba 0749, 0790  
Uniden 0724, 0722  
Zenith 0856

Futuretech 0180  
GE 0047, 1347, 0051, 0178,  
0451, 1147, 0093  
Gibraltar 0017, 0019, 0030  
GoldStar 0178, 0019, 0030,  
0056  
Gradiente 0056, 0053  
Grunpy 0179, 0180  
Hallmark 0178  
Harley Davidson 0179  
Harman/Kardon 0054  
Harvard 0180  
Hitachi 0145, 0056, 0016  
Infinity 0054  
Inteq 0017  
JBL 0054  
JCB 0000  
JVC 0053  
KEC 0180  
KTV 0180, 0030  
Kenwood 0030, 0019  
Konka 0707, 0632, 0628, 0638,  
0703  
LG 0056  
LXI 0154, 0047, 0054, 0156,  
0178  
Logik 0016  
Luxman 0056  
MGA 0150, 0019, 0030, 0178  
MTC 0060, 0030, 0019, 0056  
Magnavox 0054, 0030, 0179,  
1254  
Majestic 0016  
Marantz 0054, 0030  
Matsushita 0250  
Megatron 0145, 0178  
Memorex 0179, 0463, 0178,  
0016, 0056, 0150, 0154, 0250  
Midland 0017, 0047, 0051  
Mitsubishi 0150, 0178, 0019,  
0093  
Motorola 0093  
Multitech 0180  
NAD 0156, 0166, 0178  
NEC 0030, 0019, 0056  
NTC 0092  
Nikko 0178, 0030, 0092  
Onwa 0180  
Optimus 0250, 0166, 0154  
Optonica 0093  
Orion 0463, 0179, 0236  
Panasonic 0051, 0250  
Penney 0047, 1347, 0060, 0030,  
0178, 0051, 0019, 0056, 0156  
Philco 0145, 0019, 0030, 0054,  
0463  
Philips 0054  
Pilot 0019, 0030  
Pioneer 0166, 0679  
Portland 0019, 0092  
Princeton 0717

Prism 0051  
Proscan 0047  
Proton 0178  
Pulsar 0017, 0019  
Quasar 0051, 0250  
RCA 0047, 1347, 1147, 0679,  
1247, 0019, 0051, 0090, 0093,  
1047, 1447  
Radio Shack 0180, 0030, 0178,  
0154, 0019, 0047, 0056  
Realistic 0180, 0154, 0030,  
0178, 0019, 0056  
Runco 0017, 0030  
SSS 0019, 0180  
Sampo 0030  
Samsung 0060, 0019, 0178,  
0030, 0056  
Sansei 0451  
Sansui 0463  
Sanyo 0154  
Scimitus 0019  
Scotch 0178  
Scott 0236, 0019, 0178, 0179,  
0180  
Sears 0154, 0056, 0156, 0047,  
0054, 0171, 0178, 0179  
Semivox 0180  
Semp 0156  
Pioneer 0144, 0533, 0877  
Pulsar 0000  
Quasar 0000  
Regal 0273, 0279  
Runco 0000  
Samsung 0144  
Scientific Atlanta 0017, 0477,  
0877  
Starcom 0003  
Toshiba 0000  
Sharp 0093, 0688  
Shogun 0019  
Signature 0016  
Sony 0000  
Soundesign 0178, 0179, 0180  
Squareview 0171  
Starlite 0180  
Supreme 0000  
Sylvania 0054, 0030  
Symphonic 0171, 0180  
TMK 0056, 0178  
TNCi 0017  
Tandy 0093  
Technics 0051, 0250  
Technol Ace 0179  
Techwood 0051, 0056  
Teknika 0016, 0054, 0179, 0180,  
0019, 0092, 0056, 0060, 0150  
Telefunken 0056  
Toshiba 0156, 0060, 0154, 1256  
Vector Research 0030  
Victor 0053  
Vidikron 0054

#### TELEVISION CODES

AOO 0019, 0030  
Admiral 0093, 0463  
Aiko 0092  
Aiwa 0701  
Akai 0030  
Alaron 0179  
America Action 0180  
Anam 0180  
Audiovox 0092, 0180, 0451,  
0623  
Baysonic 0180  
Belcor 0019  
Bell & Howell 0016, 0154  
Bradford 0180  
Brockwood 0019  
Broksonic 0236, 0463  
CXC 0180  
Candle 0030, 0056  
Carnivale 0030  
Carver 0054  
Celebrity 0000  
Cineral 0451, 0092  
Citizen 0056, 0030, 0060, 0092  
Concerto 0056  
Contec 0180  
Craig 0180  
Crosley 0054  
Crown 0180  
Curtis Mathes 0060, 0030, 0016,  
0047, 0051, 0054, 0056, 0093,  
0145, 0154, 0166, 0451, 1147,  
1347  
Daewoo 0092, 0623, 0019, 0624,  
0451  
Daytron 0019  
Denon 0145  
Dumont 0017, 0019  
Electroband 0000  
Emerson 0236, 0180, 0178,  
0179, 0463, 0624, 0623, 0019,  
0154  
Envision 0030  
Fisher 0154  
Fujitsu 0179, 0683  
Funai 0180, 0171, 0179

Vidtech 0019, 0178  
Wards 0054, 0178, 0016, 0019,  
0030, 0056, 0179  
White Westinghouse 0624,  
0623, 0463  
Yamaha 0019, 0030  
Zenith 0017, 0624, 0016, 0092,  
0463

#### VCR CODES

Admiral 0048, 0209  
Adventura 0000  
Aiko 0278  
Aiwa 0000, 0037  
America Action 0278  
American High 0035  
Asha 0240  
Audiovox 0037  
Beaumarck 0240  
Bell & Howell 0104  
Broksonic 0121, 0184, 0002,  
0209, 0479  
CCE 0072, 0278  
Calix 0037  
Canon 0035  
Carver 0081  
Cineral 0278  
Citizen 0278, 0037  
Colt 0072  
Craig 0037, 0072, 0047, 0240  
Curtis Mathes 0035, 0060, 0162  
Cybernex 0240  
Daewoo 0278, 0045  
Denon 0042  
Dynatech 0000  
Electrohome 0037  
Electrophonic 0037  
Emerex 0032  
Emerson 0184, 0002, 0209,  
0278, 0121, 0479, 0000, 0037,  
0043  
Fisher 0047, 0104  
Fuji 0033, 0035  
Funai 0000  
GE 0035, 0060, 0048, 0240  
Garrard 0000  
Go Video 0432  
GoldStar 0037, 0038  
Gradiente 0000  
HI-Q 0047  
Harley Davidson 0000  
Harman/Kardon 0038, 0081  
Harwood 0072  
Hitachi 0042, 0000  
Hughes Network Systems 0042  
JVC 0067  
KEC 0037, 0278  
KLH 0072  
Kenwood 0067, 0038  
Kodak 0035, 0037

LXI 0037  
Lloyd's 0000  
Logik 0072  
MEI 0035  
MGA 0043, 0240  
MGN Technology 0240  
MTC 0000, 0240  
Magnasonic 0278  
Magnavox 0035, 0081, 0563,  
0000, 0039, 0149  
Magnin 0240  
Marantz 0081, 0035  
Marta 0037  
Matsushita 0035, 0162  
Memorex 0104, 0047, 0479,  
0000, 0037, 0048, 0035, 0240,  
1037, 0039, 0162, 0209, 1162,  
1262  
Minolta 0042  
Mitsubishi 0043, 0048, 0067  
Motorola 0035, 0048  
Multitech 0000, 0072  
NEC 0038, 0067, 0104  
Nikko 0037  
Noblex 0240  
Olympus 0035  
Optimus 0162, 1062, 1162,  
0048, 1262, 0037, 1048, 0104,  
0432  
Orion 0479, 0002, 0184, 0209  
Panasonic 0035, 0162, 1162,  
1262, 1362, 0616, 1062  
Penney 0035, 0240, 0037, 0042,  
0038  
Pentax 0042  
Philco 0035, 0209, 0479  
Philips 0081, 0035, 0618, 1081,  
1181  
Pilot 0037  
Pioneer 0067  
Polk Audio 0081  
Profitronic 0240  
Proscan 0060  
Protec 0072  
Pulsar 0039  
Quasar 0035, 0162, 1162  
RCA 0060, 0149, 0042, 0035,  
0048, 0240  
Radio Shack 0000, 1037  
Radix 0037  
Randex 0037  
Realistic 0000, 0104, 0047,  
0048, 0037, 0035  
ReplayTV 0614, 0616  
Runco 0039  
STS 0042  
Samsung 0045, 0240  
Sanky 0039, 0048  
Sansui 0479, 0000, 0067, 0209  
Sanyo 0047, 0104, 0240  
Scott 0184, 0121, 0043, 0045

Sears 0037, 0042, 0000, 0035,  
0047, 0104  
Semp 0045  
Sharp 0048  
Shintom 0072  
Shogun 0240  
Singer 0072  
Sony 0033, 0032, 0000, 0035,  
0636, 1032  
Sylvania 0035, 0081, 0000, 0043  
Symphonic 0000  
TMK 0240  
Teac 0000  
Technics 0035, 0162  
Teknika 0000, 0035, 0037  
Thomas 0000  
Tivo 0618, 0636  
Toshiba 0045, 0043  
Totevision 0037, 0240  
Unitech 0240  
Vector 0045  
Vector Research 0038  
Video Concepts 0045  
Videosonic 0240  
Wards 0035, 0060, 0000, 0047,  
0240, 0042, 0048, 0072, 0081,  
0149  
White Westinghouse 0072,  
0278, 0209  
XR-1000 0072, 0000, 0035  
Yamaha 0038  
Zenith 0039, 0000, 0033, 0209,  
0479


#### DIGITAL VIDEO DISC CODES

Apex 0672  
Denon 0490  
Fisher 0670  
GE 0522  
Gradiente 0651  
Hitachi 0573, 0664  
Hiteker 0672  
JVC 0623, 0558  
Kenwood 0682, 0534  
Konka 0719, 0711, 0720, 0721  
Magnavox 0503, 0675  
Marantz 0539  
Mitsubishi 0521  
Onkyo 0503  
Optimus 0571  
Oritron 0651  
Panasonic 0490, 0677, 0632  
Philips 0539, 0503  
Pioneer 0571, 0525, 0632  
Proscan 0522  
RCA 0522, 0571

Samsung 0573  
Sharp 0630  
Sony 0533  
Technics 0490  
Theta Digital 0571  
Toshiba 0503  
Yamaha 0490, 0545  
Zenith 0591, 0503

## Keyboard Programming

The MS300 includes a wireless IR keyboard with universal remote control capabilities. The keyboard can be programmed to operate one MS300 Music Server and three other devices.

Only the MS300 source button (the one with the swoop)  can be programmed to operate the MS300. The three source buttons on the remote labeled TV, RCV, and DVD can be programmed to operate other devices.



### ***Programming the Keyboard to Control MS1, MS2, MS3, or MS4 Sources***



Swoop  
Button

The MS300 (swoop) source button is preprogrammed at the factory to correspond to the MS1 button on the remote. The MS300 source button can be programmed to correspond to any of the MS source buttons.

Follow these steps to program the keyboard to control any of the 4 MS IR code banks:

1. Press Swoop
2. Press & Hold the “Set” button on the keyboard until the LED flashes twice.

3. Slowly enter “997” using the number buttons on the keyboard. The LED will flash twice again.
4. Press the “CH-” button on the left side of the keyboard. The LED will flash four times.
5. Press the MS300 (swoop) source button.
6. Press & Hold the “Set” button on the keyboard until the LED flashes twice.
7. Slowly enter:
  - 1119 for the MS1 button
  - 1120 for the MS2 button
  - 1121 for the MS3 button
  - 1122 for the MS4 button
8. The LED will again flash twice indicating the programming was successful.



The transport buttons on the top right of the keyboard are programmed to operate the MS300, however, they are actually programmed onto the CBL source buttons.

The CBL button functions as the MS1 remote source button on the keyboard. This button “punches-thru” to the swoop key so that both are enabled when either the Swoop or the CBL button has been pressed. However, the CBL button is not available as a universal source when it has been programmed as the MS300 transport source button.



**DO NOT** program the CBL source button to control any other devices. Doing so will prohibit the use of the transport keys for controlling the MS300.

If you accidentally reprogram the CBL source button, use the following steps to program the CBL button back to control the MS300 transports:

- Press the CBL source button.
- Press & Hold the “Code Set” button on the remote until the LED flashes twice.
- Enter the CBL reset code which corresponds to the MS source being reset:
  - “1370” for MS1
  - “1371” for MS2
  - “1372” for MS3
  - “1373” for MS4
- The LED will flash twice indicating the code was accepted.



## Programming the Universal Source Buttons



Use the following steps to program the AUX, DVD, TV, and RCV source buttons to control other devices. The following table indicates which device types can be programmed on which source buttons:

Source Button	Device Assignment
TV	TV
CBL	NOT AVAILABLE
RCV	Amplifier, Tuner, Phono, Misc. Audio, CD, Home Automation, MD
DVD	VCR, Audio Cassette, DVD, LDP, DAT, PVR

- Locate the 4 digit device code for the device you want to control in Appendix A.
- Press the source button to be programmed.
- Press & Hold the “Code Set” button on the remote until the LED flashes twice.
- Enter the 4 digit code using the remote’s numeric keypad. The LED will flash twice indicating the code was accepted.

Note: If the LED does a single long flash then the entered code was not valid for that source button.

See Appendix B for details and instructions for accessing the other various functions available on the remote control.

## McIntosh IR Key Codes

The MS300 Remote Control uses the Philips RC6 Mode 6A IR protocol. The following table lists the RC6 Mode 6A key codes used by the MS300 that can be used in the ProntoEdit PC application to generate the IR codes for the Philips Pronto remote products and can also be used to generate the CCF files that can be imported into other 3rd party applications and control systems.

Note: There are also discrete IR codes listed in the table that are not available on the IR remote but can be used by control systems for functions such as discrete Power On and Off.

McIntosh Company Code: 32790

MS1: Address = 1

MS2: Address = 2

MS3: Address = 3

MS4: Address = 4

### ***IR Remote RC6 Mode 6A Key Codes:***

Remote Key Label	Key Type	RC6 Key Code
TV	Mode	----
VCR	Mode	
CABLE	Mode	----
AUX	Mode	----
AMP	Mode	----
TNR	Mode	----
CD	Mode	----
SAT	Mode	----
POWER	Primary	0Fh
1 (./?)	Primary	01h
2 (ABC)	Primary	02h
3 (DEF)	Primary	03h
4 (GHI)	Primary	04h
5 (JKL)	Primary	05h
6 (MNO)	Primary	06h
7 (PQRS)	Primary	07h
8 (TUV)	Primary	08h
9 (WXYZ)	Primary	09h
0 (@-*#)	Primary	00h
MUTE	Primary	0Ch
ENTER	Primary	10h
+ (VOLUME)	Primary	0Ah
- (VOLUME)	Primary	0Bh
MODE (LAST)	Primary	11h
SETUP (SLEEP)	Primary	12h
OPTION (INPUT)	Primary	13h
+ (CH/PAGE)	Primary	0Dh

- (CH/PAGE)	Primary	0Eh
GUIDE	Primary	14h
OPENGLOBE	Primary	15h
UP	Primary	16h
DOWN	Primary	17h
LEFT	Primary	18h
RIGHT	Primary	19h
SELECT	Primary	1Ah
INFO (ALL)	Primary	1Bh
VIEW (MENU)	Primary	1Ch
REW (BACKSPACE)	Primary	20h
PLAY	Primary	21h
FF (SPACE)	Primary	22h
PAUSE	Primary	25h
STOP	Primary	24h
RECORD	Primary	23h
MOVIES	Primary	26h
SUBTITLE	Primary	27h
AUDIO	Primary	30h
MACRO	Primary	31h
IRADIO	Primary	2Ah
NEXT	Primary	2Bh
PREV	Primary	32h
REPEAT	Primary	33h
MUSIC	Primary	2Ch
ADD	Primary	2Dh
PLAY	Primary	2Eh
RANDOM	Primary	2Fh

***Discrete RC6 Mode 6A Key Codes:***

Discrete Function	RC6 Key Code
Power On	41h
Power Off	42h
Normal Play Mode	43h
Repeat Track Play Mode	44h
Repeat Title Play Mode	45h
Repeat Group Play Mode	46h
Random Title Play Mode	47h
Random Group Mode	48h
View Artist	49h
View Title	4Ah
View Song	4Bh
View Cover	4Ch
Player	4Dh
Guide	4Eh

## Control Cable Pin-Outs and Requirements

The MS300 uses a standard null modem cable to connect between its RS-232 COM ports and external changers and control systems. Cables must be 25 feet or less in length.

MS300 DB-9 Female		Component DB-9 Female	
Pin	Function	Pin	Function
2	RD	3	TD
3	TD	2	RD
5	GND	5	GND
4	DTR	6	DSR
6	DSR	4	DTR

Note: DR and DSR lines are only required for connection to Kenwood DVD changers. The MS300 uses the DTR/DSR lines to determine a connection and power state.

# External Control Protocol Specification

## Commands and Responses Overview

Version 03.11.13.02.00

The external control protocol is standard ASCII based. ESCX is the four letter preamble that is used for all commands. This preamble must be uppercase. The commands provided in this protocol allow an external control system to navigate the McIntosh Music Server, get library information to build custom user interfaces, perform transport controls, and receive unsolicited feedback on system status.

All external control commands are made up of the preamble (ESCX), command group (01,02,10,20,50,70), sub command (specific task), specific data (# of data items, and a size of data packet then the actual data packet repeated for the # of data items), and a carriage return end marker.

## External Control Command Structure

DESCRIPTION	PREAMBLE	COMMAND GROUP	SUB COMMAND	# DATA ITEMS	DATA ITEM #1 SIZE	DATA #1	DATA ITEM #2 SIZE	DATA #2	END MARKER
Bytes	4	2	2	3	4	5	4	3	1
Example	ESCX	01	08	002	0005	Hello	0003	Bye	Carriage Return

The external control commands are broken down into the following Command Groups:

- 01 – Command Responses
- 02 – Unsolicited Events
- 10 – Remote Button / Keyboard Commands
- 20 – Database Commands
- 50 – Status Commands
- 70 – Control Commands

## Command Responses

All commands will cause one of the following response numbers to be issued. Some commands, such as database commands will also send back additional responses that contain more detailed information.

COMMAND GROUP	RESPONSE NUMBER	RESPONSE DESCRIPTION
01	01	OK
01	02	Bad Command Structure
01	03	Empty Library or Bad Range
01	04	Wrong Number of Command Arguments
01	05	Invalid Subcommand
01	06	Invalid Command
01	07	Not Available During Standby (deprecated)
01	08	Requested data not available
01	09	External control command not yet implemented (possible future implementation)
01	10	Not Available at This Time
01	11	Invalid Security Password

*Response Format:* ESCX01xx, where xx = Command response

Response 07 has been deprecated due to the new auto-on function. Whenever a valid command is received (with two exceptions), the system will automatically enter the “on” mode, if it is in standby. A client may still handle response 07, but it is no longer sent from the host for any reason.

Response 10 will be sent when a normally valid command is sent to the host, but it cannot be processed due to the system’s mode. For example, a database play will not be processed while the system is in setup or options mode, AutoBuilding a changer, etc. Note that a key press command will never return this response, as even audio transport keys (play, stop) have alternate functions in various modes.

### **Unsolicited Status Events**

Unsolicited status events can be sent to report the state changes of the McIntosh products. There are two currently defined message levels: 5 - track changes, and 10 - all (including 1-second playing time updates). Clients are registered at level 5 by default. Clients may change their message level using the ESCX7002 command. See the control commands section for instructions on how to register and unregister for unsolicited status event levels.

COMMAND GROUP	EVENT NUMBER	EVENT DESCRIPTION
02	01	Power status changed. When the system has booted into an off state you will receive a “RDY” status indicating it is ready to be powered on and from then on an “OFF” or an “ON “ status.
02		<i>Event Format:</i> ESCX02010010003xxx, Where xxx = a 3 character string

		<p>“RDY” = when power is first applied and it boots into the off state (standby mode) – ready for power on.  “ON “ = if power on turned on (GUI appears)  “OFF” = if power is off (standby mode) (Video out off)</p>
02	02	Play Mode changed (normal, random, etc)
02		<p><i>Event Format:</i> ESCX02020010002<b>xx</b>,  Where <b>xx</b> = the new play mode  01 = normal  02 = repeat track  03 = repeat title  04 = repeat group  05 = random title  06 = random group</p>
02	03	Guide View changed
02		<p><i>Event Format:</i> ESCX02030010002<b>xx</b>  Where <b>xx</b> = the new guide view  01 = Guide changed to Artist view  CD titles are displayed sorted by artist name  02 = Guide changed to Titles view  CD titles are displayed sorted by CD title  03 = Guide changed to Song view  Song titles are displayed sorted by song title  04 = Guide changed to Cover view  Covers are displayed sorted by artist then by title</p>
02	04	Playing Artist/Title/Song has changed
02		<p><i>Event Format:</i>  ESCX02040070002<b>aa</b>0003<b>bbb</b><b>cccc</b><b>ddd</b><b>eeee</b><b>ffff</b><b>gggg</b><b>hh</b><b>iiii</b><b>jjj</b>0002<b>kk</b>  <b>aa</b> = the play state  01 = Play, 02 = Stop, 03 = Pause  <b>Radio only:</b>  04 = Locating Station, 05 = Buffering data,  06 = Station Not Found  <b>bbb</b> = current track number (0 if Radio Mode)  <b>cccc</b> = length of artist name  <b>ddd</b> = artist name  <b>eeee</b> = length of title name  <b>fff</b> = title name (station name if Radio Mode)  <b>gggg</b> = length of track name  <b>hhh</b> = track name (aspect ratio if Movie Mode)  Aspect Ratio (Movie Mode only):  00 = Unknown  01 = Standard 1.33  02 = Standard 1.78  03 = Standard 1.85  04 = Standard 2.35</p>

		<p>05 = Anamorphic 1.33  06 = Anamorphic 1.78  07 = Anamorphic 1.85  08 = Anamorphic 2.35  <b>iii</b> = length of track time  <b>jjj</b> = current track time (0 if Radio Mode)  <b>kk</b> = current media type  00 = unknown, 01 = CD, 02 = DATA CD, 03 = MP3,  04 = playlist, 05 = DVD, 06 = radio  The current track, artist name, title name, track name, current track time, and media type are only returned for the play event. The stop and pause events just signify that the state has changed.</p>
02	05	Guide Mode changed (Playlist edit mode, Record mode, Delete mode, etc) [possible future implementation]
02	06	Screen Mode changed (Guide, Player, Options, Setup, etc) [possible future implementation]
02	07	Database has changed. The external control system should re-read the library information.
02	08	GUI to Movie. User switched to the Full screen movie. [possible future implementation]
02	09	Movie to GUI. User switched back to the MS300 GUI from a movie. [possible future implementation]
02	10	Security Password changed. The system is now locked (password protected mode) until the user unlocks it.
02	11	Video mode changed.
02		<p><i>Event Format: ESCX02110010002xx</i>  Where <b>xx</b> = the new video mode  00 = Video is in normal mode (MS300 video)  01 = Video is in passthru mode (DVD changer video)</p>

The Remote Button / Keyboard commands are used when the video output of the MS300 system is displayed on a TV or large screen projector and it is desired to directly select the MS300 control functions through an external control system.

The up, down, left, right, and select functions can be used to navigate objects on the screen and select them. The active MS300 control function is highlighted and the selection cursor is moved over it.

Various other commands are used to mimic the operation of the remote control. Note that the command response will be "OK" as long as the key code is a valid one, even though the system may ignore the key if the system is in a mode where the key would not normally be processed.



## Remote Button / Keyboard Commands

COMMAND GROUP	SUB COMMAND NUMBER	COMMAND DESCRIPTION
10	01	Left
10	02	Up
10	03	Right
10	04	Down
10	05	Select
10	06	Move To X and Y Coordinates and Select
10		The upper left point on the screen is (0,0) and the resolution of the screen is 720 by 480 pixels.
10		
10	07	Power Toggle
10	08	Power On
10	09	Power Off
10		
10	10	“0”
10	11	“1”
10	12	“2”
10	13	“3”
10	14	“4”
10	15	“5”
10	16	“6”
10	17	“7”
10	18	“8”
10	19	“9”
10	20	“~”
10	21	“.”
10	22	“/”
10	23	“,”
10	24	“?”
10	25	“@”
10	26	“_”
10	27	“ ”
10	28	“*”
10	29	“#”
10	30	Ch/Page +
10	31	Ch/Page -
10	32	Mode Increment – Only works in Player
10	33	Mode Play – Normal – Only works in Player
10	34	Mode Play – Repeat Track – Only works in Player
10	35	Mode Play – Repeat Title – Only works in Player
10	36	Mode Play – Repeat Group – Only works in Player

10	37	Mode Play – Random Title – Only works in Player
10	38	Mode Play – Random Group – Only works in Player
10	39	Setup
10	40	Option
10	41	Guide (toggles between Guide and Player) **
10	42	Guide Explicit (always goes to Guide) **
10	43	Player Explicit (always goes to Player) **
10	44	OpenGlobe
10	45	Info
10	46	Menu (DVD Menu and Guide View Increment)
10	47	Guide View – Covers
10	48	Guide View – Artist
10	49	Guide View – Title
10	50	Guide View - Song
10		
10	51	Play a numbered Playlist (argument has Playlist number)
10	52	Repeat
10	53	Macro
10	54	Play
10	55	Stop
10	56	Pause
10	57	Previous Track
10	58	Next Track
10	59	Record
10		
10	60	Movies
10	61	Music
10	62	iRadio
10	63	Title
10	64	Audio
10	65	Previous
10	66	Next
10	67	Add Favorites
10	68	Play Favorites
10	69	Random
10	70	“ “
10	71	BACKSPACE
10	74	“A”
10	75	“B”
10	76	“C”
10	77	“D”

10	78	“E”
10	79	“F”
10	80	“G”
10	81	“H”
10	82	“I”
10	83	“J”
10	84	“K”
10	85	“L”
10	86	“M”
10	87	“N”
10	88	“O”
10	89	“P”
10	90	“Q”
10	91	“R”
10	92	“S”
10	93	“T”
10	94	“U”
10	95	“V”
10	96	“W”
10	97	“X”
10	98	“Y”
10	99	“Z”

\*\* This command does not function if the Options screen, OpenGlobe CE-Commerce screen, or Playlist Edit screens are displayed.

*Command Format:* ESCX10**xx**

- 01 – ESCX10**01**
- 02 – ESCX10**02**
- 03 – ESCX10**03**
- 04 – ESCX10**04**
- 05 – ESCX10**05**
- 06 – ESCX10**60020003aaa0003bbb**
- aaa** = X coordinate
- bbb** = Y coordinate

10 – ESCX10**10**

- 20 – ESCX10**20**
- 21 – ESCX10**21**
- 22 – ESCX10**22**

etc...

- 51 – ESCX10**510010001x**
- x** = Playlist number (1 – 6)

All the Database commands are available regardless of the power state, except for Command 05, Play which will return an error response if attempted during standby. The groups, styles, and custom genres are grouped into system groups and user groups. The system groups have system groupings such as the All group, MP3 group, and Playlists groups. The user groups contain the genres for your music and your custom genres that have been created. The All radio station group and the NetRadio group are contained in the radio system groups while all other radio stations are in the system group. Titles are returned listed in alphabetical order by title regardless of the state of the user interface.

### Database Commands

COMMAND GROUP	SUB COMMAND	DESCRIPTION
20	01	Get number of groups (genres) in the database
20		<p>ESCX20010010002xx</p> <p>xx = which list to get groups from, where            01 = System Music Groups            02 = User Music Groups            03 = System Radio Groups            04 = User Radio Groups            05 = System Movie Groups            06 = User Movie Groups</p> <p><i>Reply Format:</i> ESCX20010010004xxxx,            Where xxxx = total number of groups in the specified list</p> <p>Once the total number of groups is known, you can ask information for a range of groups using the <b>02</b> subcommand</p>
20	02	Get group information
20		<p>ESCX20020030002aa0004bbbb0004cccc</p> <p>aa = which list to get groups from, where            01 = System Music Groups            02 = User Music Groups            03 = System Radio Groups            04 = User Radio Groups            05 = System Movie Groups            06 = User Movie Groups</p> <p>bbbb = starting group number            cccc = ending group number</p>
20		<p><i>Reply Format:</i> ESCX2002xxxGROUP1GROUP2etc...,            Where xxx = total number of groups multiplied by 2,            Each group is made up two items so</p>
20		<p>GROUP1 above = XXXXxxxxYYYYyyyyyyyyy where            XXXX = length of item #1, by default this is 0003 but may be            0004 if there are more than 999 titles in the group</p>

		<p><b>xxxx</b> = number of titles in the group  <b>YYYY</b> = length of item #2 (length of group name)  <b>yyyyyyyyy</b> = group name (length depends on <b>YYYY</b>)</p>
		GROUP2, etc... have the same format as GROUP1
20	03	Get title (music or movie) or station (radio) information (includes Playlists because they are virtual CD titles)
20		<p>ESCX20030040002aa0004bbbb0004cccc0004dddd  <b>aa</b> = which list to get groups from, where  01 = System Music Groups  02 = User Music Groups  03 = System Radio Groups  04 = User Radio Groups  05 = System Movie Groups  06 = User Movie Groups  <b>bbbb</b> = group number to get titles for  <b>cccc</b> = starting title number  <b>dddd</b> = ending title number</p>
		<p><i>Reply Format:</i> ESCX2003xxxTITLE1TITLMS300etc...,  Where <b>xxx</b> = total number of titles multiplied by 2,  Each title is made up of two items so</p>
		<p>TITLE1 above = 0003xxxyyyyzzzzzzzzzz  0003 = length of item #1 (always 3)  <b>xxx</b> = number of tracks in the title for Music, running time of  title for Movie, bitrate of station for Radio  <b>yyyy</b> = length of item #2 (length of title)  <b>zzzzzzzzzz</b> = title/radio station (length depends on <b>yyyy</b>)</p>
		TITLMS300, etc... have the same format as TITLE1
20	04	Get track information
20		ESCX20040050002aa0004bbbb0004cccc0004dddd0004eeee
		<p><b>aa</b> = which list to get groups from, where  01 = System Music Groups  02 = User Music Groups  <b>bbbb</b> = group number to get tracks for  <b>cccc</b> = title number to get tracks for  <b>dddd</b> = starting track number  <b>eeee</b> = ending track number</p>
		<p><i>Reply Format:</i> ESCX2004xxxTRACK1TRACK2etc...,  Where <b>xxx</b> = total number of tracks,  Each TRACK is made of one item so</p>
		<p>TRACK1 = <b>bbbbzzzzzzzz</b>  <b>yyyy</b> = length of track name  <b>zzzzzzzzzz</b> = track name (length depends on <b>yyyy</b>)</p>
		TRACK2, etc... have the same format as TRACK1
20	05	Play music track/radio station/Playlist

20		<p>ESCX20050040002<b>aa</b>0004<b>bbbb</b>0004<b>cccc</b>0004<b>dddd</b></p> <p><b>aa</b> = which database to get groups from, where  01 = System Music Groups  02 = User Music Groups  03 = System Radio Groups  04 = User Radio Groups</p> <p>(allow direct play of movies even though we don't track actual number of chapters)  05 = System Movie Groups  06 = User Movie Groups</p> <p><b>bbbb</b> = group number  <b>cccc</b> = title/station number  <b>dddd</b> = track number (ignored for radio)</p>
20	06	Get group number for a specific music, radio, or movie genre by name.
20		<p>ESCX20060020002<b>aa</b><b>BBBB</b><b>bbbbbbbb</b></p> <p><b>aa</b> = which list to get groups from, where  01 = System Music Groups  02 = User Music Groups  03 = System Radio Groups  04 = User Radio Groups  05 = System Movie Groups  06 = User Movie Groups</p> <p><b>BBBB</b> = length of the group name  <b>bbbbbbbb</b> = which group you want the number for</p>
20		01 – System Music group name examples are: All, Playlists, CDs, MP3s
20		02 –User Music group name examples are: Blues/Folk Classical Country Dance Easy Listening Family HipHop-Rap Jazz Latin New Age Other Pop R&B/Soul Rock Soundtracks
20		03 – System iRadio group name examples are: All, NetRadio

20		<p>04 – User iRadio group name examples are:</p> <ul style="list-style-type: none"> <li>Alternative</li> <li>Classic Rock</li> <li>Classical</li> <li>Country</li> <li>Eclectic</li> <li>Hip Hop</li> <li>Holiday</li> <li>International</li> <li>Jazz</li> <li>New Age</li> <li>Oldies</li> <li>R&amp;B</li> <li>Religious</li> <li>Soft Rock</li> <li>News/Talk</li> <li>Top 40</li> <li>Rock</li> <li>Other</li> </ul>
20		<p><i>Reply Format:</i> ESCX20060010004<b>xxxx</b>, Where <b>xxxx</b> = group number for the group specified by aaaa</p>
20		<p>Once group number is known, use the <b>02</b> subcommand for info.</p>
20	07	<p>Get title (music or movie) or station (radio) information by name (includes Playlists also, because they are virtual CD titles). Partial strings can be used. Case does not matter.</p>
20		<p>ESCX20070030002<b>aa</b>0004<b>bbbbccccdddd</b>  <b>aa</b> = which list to get groups from, where  01 = System Music Groups  02 = User Music Groups  03 = System Radio Groups  04 = User Radio Groups  05 = System Movie Groups  06 = User Movie Groups  <b>bbbb</b> = group number to get titles for  <b>cccc</b> = length of the title/station/Playlist name  <b>dddd</b> = name of title/station/Playlist you want the number  for</p>
		<p><i>Reply Format:</i> ESCX2007<b>xxx</b>TITLE1TITLMS300etc..., Where <b>xxx</b> = total number of titles/station/Playlists that match Multiplied by 2, each title is made up of two items so</p>
		<p>TITLE1 above = 0003<b>xxx</b>0004<b>yyyy</b> 0003 = length of item #1 (always 3)</p>

		<p><b>xxx</b> = number of tracks in the title for Music, running time of title for Movie, bitrate of station for Radio 0004 = length of item #2 (always 4) <b>zzzz</b> = title/station number</p>
		<p>Most likely only one title will be returned for this command, however if you have duplicate titles, TITLMS300, etc... have the same format as TITLE1</p>
		<p>Once the title/station/Playlist number and the number of tracks are known you can use the 04 – Get track information command or the 05 – Play music track/radio station/Playlist command.</p>
20	08	<p>Get title (music or movie) or station (radio) cover art (includes Playlists because they are virtual CD titles)</p>
20		<p>ESCX20080040002<b>aa</b>0004<b>bbbb</b>0004<b>cccc</b>0004<b>dddd</b>  <b>aa</b> = which list to get groups from, where  01 = System Music Groups  02 = User Music Groups  03 = System Radio Groups  04 = User Radio Groups  05 = System Movie Groups  06 = User Movie Groups  <b>bbbb</b> = group number to get titles for  <b>cccc</b> = starting title number  <b>dddd</b> = ending title number</p>
		<p><i>Reply Format:</i> ESCX2008<b>xxx</b>TITLE1TITLMS300etc...,  Where <b>xxx</b> = total number of titles  Each title is made up of one item so</p>
		<p>TITLE1 above = <b>xxxxyyyyyyyyyy</b>  <b>xxxx</b> = length of cover art url  <b>yyyyyyyyyy</b> = cover art url</p>
		<p>TITLMS300, etc... have the same format as TITLE1</p>
20	09	<p>Get title (music or movie) or station (radio) detailed information (includes Playlists because they are virtual CD titles)</p>
20		<p>ESCX20090040002<b>aa</b>0004<b>bbbb</b>0004<b>cccc</b>0004<b>dddd</b>  <b>aa</b> = which list to get groups from, where  01 = System Music Groups  02 = User Music Groups  03 = System Radio Groups  04 = User Radio Groups  05 = System Movie Groups  06 = User Movie Groups  <b>bbbb</b> = group number to get titles for  <b>cccc</b> = starting title number</p>



		<b>dddd</b> = ending title number
		<i>Reply Format:</i> ESCX2009 <b>xxx</b> TITLE1TITLMS300etc..., Where <b>xxx</b> = total number of titles multiplied by 2, Each title is made up of two or four items so
		For Music and Radio, TITLE1 above = <b>xxxxXXXXyyyyYYYY</b> <b>xxxx</b> = length of item #1 (length of year/channels) <b>XXXX</b> = year of title for Music, audio channels for Radio (length depends on <b>xxxx</b> ) <b>yyyy</b> = length of item #2 (length of label/location) <b>YYYY</b> = record label for Music, station location for Radio (length depends on <b>yyyy</b> )
		For Movies, TITLE1 above = <b>WWWWwwwXXXXxxxxYYYYyyyyZZZZzzzz</b> <b>WWWW</b> = length of item #1 (length of year) <b>www</b> = year of title for Movies (length depends on <b>WWWW</b> ) <b>XXXX</b> = length of item #2 (length of rating) <b>xxxx</b> = rating of title for Movies (length depends on <b>XXXX</b> ) <b>YYYY</b> = length of item #3 (length of cast) <b>yyyy</b> = cast list of title for Movies (length depends on <b>YYYY</b> ) <b>ZZZZ</b> = length of item #4 (length of description) <b>zzzz</b> = description of title for Movies (length depends on <b>ZZZZ</b> )
		TITLMS300, etc... have the same format as TITLE1
20	10	Get group names
20		ESCX20100030002 <b>aa</b> 0004 <b>bbbb</b> 0004 <b>cccc</b> <b>aa</b> = which list to get groups from, where 01 = System Music Groups 02 = User Music Groups 03 = System Radio Groups 04 = User Radio Groups 05 = System Movie Groups 06 = User Movie Groups <b>bbbb</b> = starting group number <b>cccc</b> = ending group number
20		<i>Reply Format:</i> ESCX2010 <b>xxx</b> GROUP1GROUP2etc..., Where <b>xxx</b> = total number of groups. If the starting group number and ending group number are both equal to zero, all groups in the list are returned. Each group is made up of one item so
20		GROUP1 above = <b>xxxxyyyyyyyyyy</b> where

		<b>xxxx</b> = length of group name <b>yyyyyyyyy</b> = group name (length depends on <b>xxxx</b> )
20	11	Change music playlist name
20		ESCX20110020004 <b>aaaabbbbccccccc</b> <b>aaaa</b> = which playlist to rename (number in the Playlists group) <b>bbbb</b> = length of new playlist name <b>cccc</b> = new name of the playlist
20	12	Delete music playlist
		ESCX20120010004 <b>aaaa</b> <b>aaaa</b> = which playlist to delete (number in the Playlists group)
20	13	Add music track to the Favorites playlist
20		ESCX20130040002 <b>aa0004bbbb0004cccc0004dddd</b> <b>aa</b> = which list to get groups from, where 01 = System Music Groups 02 = User Music Groups <b>bbbb</b> = group number <b>cccc</b> = title/station number <b>dddd</b> = track number

### Status Commands

COMMAND GROUP	SUB COMMAND	DESCRIPTION
50	01	Get power state
50		<i>Reply Format:</i> ESCX50010010003 <b>xxx</b> , Where <b>xxx</b> = a 3 character string “ON “ if power on “OFF” if power is off (standby mode)
50	02	Get music play mode
50		<i>Reply Format:</i> ESCX50020010002 <b>xx</b> , Where <b>xx</b> = music play mode, where 01 = normal 02 = repeat track 03 = repeat title 04 = repeat group 05 = random title 06 = random group
50	03	Get sort order [possible future implementation]
50		<i>Reply Format:</i> ESCX50030010002 <b>xx</b> , Where <b>xx</b> = guide sort order, where 01 = by artist 02 = by title 03 = by song

50	04	Get current playing title (music or movie) or station (radio) information
50		<p><i>Reply Format:</i>  <b>ESCX5004004aaaabb0004cccc0003ddd0002ee</b>  <b>aaaa</b> = length of the title/station that is playing  <b>bb</b> = title/station name (length depends on <b>aaaa</b>)  <b>cccc</b> = number of the playing title/station in the All group  <b>ddd</b> = number of the playing track (000 for movie and radio)  <b>ee</b> = current media type  00 = unknown, 01 = CD, 02 = DATACD, 03 = MP3,  04 = playlist, 05 = DVD, 06 = radio</p>
50	05	Get current screen that is displayed in the GUI [possible future implementation]
50		<p><i>Reply Format:</i> <b>ESCX50050010002xx</b>,  Where <b>xx</b> = current GUI screen, where  01 = guide  02 = player  03 = options  04 = configuration</p>

### Control Commands

COMMAND GROUP	SUB COMMAND	DESCRIPTION
70	01	Select guide source
70		<p><b>ESCX70010010002xx</b>  <b>xx</b> = guide source, where  01 = Music  02 = iRadio  03 = Movies</p>
70	02	Register for unsolicited events (by default you are registered to receive the unsolicited events for level 5)
70		<p><b>ESCX7002</b>  <b>ESCX70020010002xx</b>  <b>xx</b> = event level, where  05 = All events except 1-second updates while playing  10 = All level 5 events, plus one-second track playing time  updates during music play</p> <p>If the short version of the command is used, event level 5 will be used as the default level.</p>
70	03	Unregister for unsolicited events (prevent unsolicited events)

70		<b>ESCX7003</b>
70	04	Set Music Play Mode
70		ESCX70040010002 <b>xx</b> <b>xx</b> = music play mode, where 01 = normal 02 = repeat track 03 = repeat title 04 = repeat group 05 = random title 06 = random group
70	05	Change guide view
70		ESCX70050010002 <b>xx</b> <b>xx</b> = guide view, where 01 = Artist View (music) or Title View (movies) 02 = Title View (music only) 03 = Song View (music only) 04 = Cover View (music and movies)
70	06	Lock this control interface (enter password protected mode)
70		<b>ESCX7006</b>
70	07	Unlock this control interface (leave password protected mode)
70		ESCX7007001 <b>aaaabbbb</b> <b>aaaa</b> = length of security password <b>bbbb</b> = security password

Note that when the host is in power standby mode, any command will cause the unit to enter the power on mode before executing the command. There are two exceptions to this: a client may register and unregister for unsolicited events without turning the host on, and the Status Command “Get Power State” (ESCX5001) will return the current state of the unit without turning it on.

## Optional Accessories

Please contact your McIntosh Dealer for more information on any of these accessories.

### **Hayes Compatible Modem**

Any Hayes compatible modem (such as the [US Robotics USR5686E](#)) which supports the standard AT command set can be connected to COM port 4 and used for Internet access where broadband is not available.



### **MS300 to Sony DVD Changer Serial Cable**



### **Optical Digital Audio Cable (3')**



### **MS300 IR Keyboard**



## MS300 IR Remote



## Technical Support

McIntosh Technical Support engineers are available from 9am to 6pm (EST), Monday through Friday (US holidays excluded). 1-866-458-6910

Technical Support is available from the McIntosh Web site <http://www.mcintoshlabs.com/support.aspx> or via email <mailto:feedback@mcintoshlabs.com>.

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**FAQs:** Quick reference of Frequently Asked Questions and answers about McIntosh products.

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## Troubleshooting

### **Network Problems**

If you experience problems registering the MS300 or connecting to the Internet to lookup disc information, try these possible fixes before calling McIntosh Tech Support:

- Make sure that your MS300 is properly connected to your home network and that all cables are in working order.
- The MS300 communicates using TCP/IP and UDP over Ethernet networks using ports 80, 443, and 1755. If you have a router installed on your network, make sure that these ports are open for TCP and UDP.
- If Dynamic TCP/IP addressing fails, check your router to make sure that it is configured to assign dynamic IP addresses via DHCP and try rebooting your router.
- If DHCP addressing still isn't working, try using static IP addresses. The Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of the IP address space for private networks: 10.0.0.0 - 10.255.255.255, 172.16.0.0 - 172.31.255.255, and 192.168.0.0 - 192.168.255.255. Note that the first block is nothing but a single class A network number, while the second block is a set of 16 contiguous class B network numbers, and the third block is a set of 255 contiguous class C network numbers. The complete RFC 1918 can be found via FTP on <http://nic.ddn.mil>
- Crestron, AMX, or other third party controllers capable of controlling the MS300 over Ethernet use port 251. Make sure your router has port 251 open if you plan on using two-way control over Ethernet.

### **Software Update Problems**

#### **Manual Software Update Checks**

Software Updates are automatically checked once a week starting on the day of the week your MS300 was first registered. You can manually check for a software update by accessing the Software Update menu found under the Setup/Utilities Menu.

### **Recording Problems**

#### **Audio vs. Data CDs**

The MS300 requires Royalty paid blank media when recording audio CDs. Blank CDs marked with "Data" can not be used when creating Red Book audio CDs. You must purchase and use blank media marked as "Audio" or Music" CDs.



## ***Repeated Lockup or Crash Problems***

### **Obtaining the MS300 Core and Log files.**

If you are experiencing difficulties with your MS300, you may be instructed by a Technical Support engineer to retrieve and email the MS300 “Core” and “Log” files to McIntosh.

Follow these steps to retrieve the core and log files from your MS300:

1. Reboot the MS300 if needed.
2. Press SETUP to display the Setup Menu.
3. Select the Utilities Menu
4. Select the System Information Menu
5. Note the IP address of the MS300.
6. Log onto a PC on the same network as the MS300.
7. Launch your web browser (Netscape or Internet Explorer) and enter [http://my\\_address/7.0.2/Eureka.000.log](http://my_address/7.0.2/Eureka.000.log) Where my\_address is the IP address of your MS300. (e.g. <http://192.168.0.100/7.0.2/Eureka.000.log>)
8. Repeat Step 7 to retrieve 001.log and 002.log.
9. To get retrieve the Core file in the address bar of the browser, type [http://my\\_address/7.0.2/core](http://my_address/7.0.2/core)
  - Addresses ARE case sensitive so be careful when you type.
  - The PC must be on the same subnet as the MS300.

These files may be large. To reduce size for emailing use a zip utility such as Winzip and attach the zipped files to an email to the support person you were working with. We will evaluate and respond as quickly as they can be fully analyzed by an McIntosh engineer.