

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.

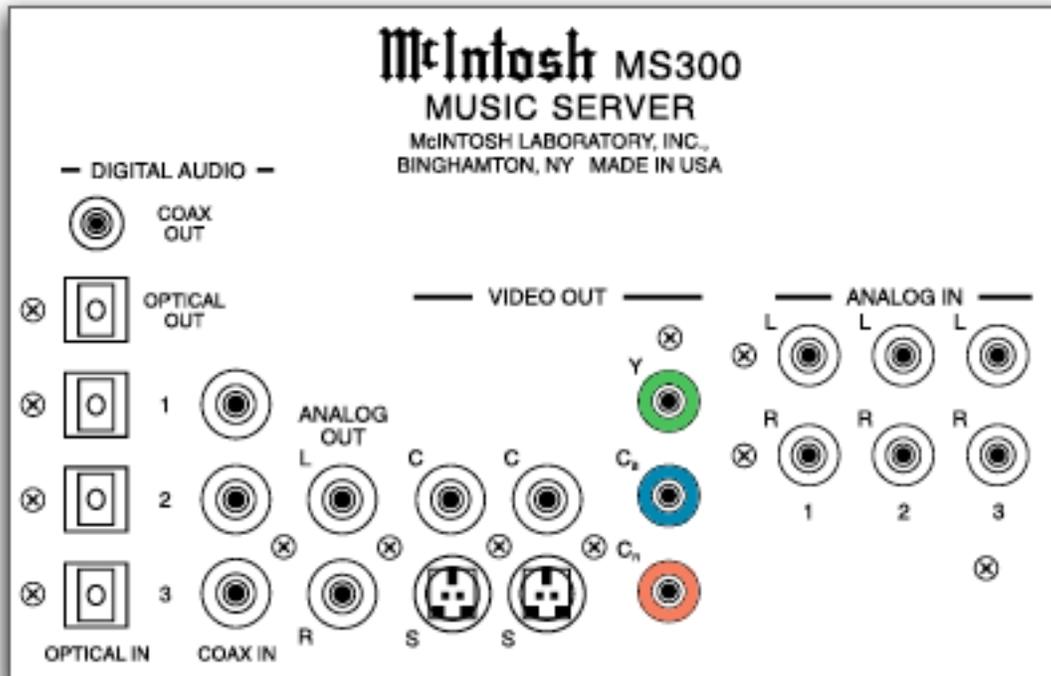
Audio Source	Analog Out	Digital TosLink Out	Digital Coax Out
	Hard Drive Audio	YES	YES
Changer Analog	YES		
Changer TosLink		YES	YES
Changer Coax		YES	YES
Internet Radio	YES	YES	YES

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.

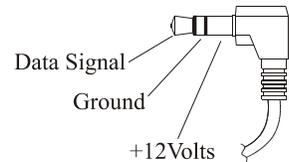
Note: You should use the Ethernet control system for controlling the MS300 from a third party control system whenever possible. Using the Ethernet control system frees up COM port 4 for other purposes, allows much longer distances between the MS300 and the control system, and provides a much faster path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

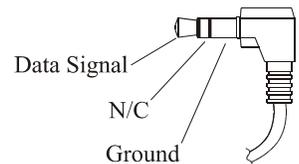
IR Connection

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.



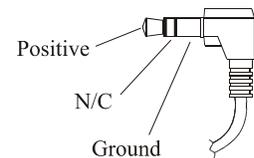
Data Port Connection

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.



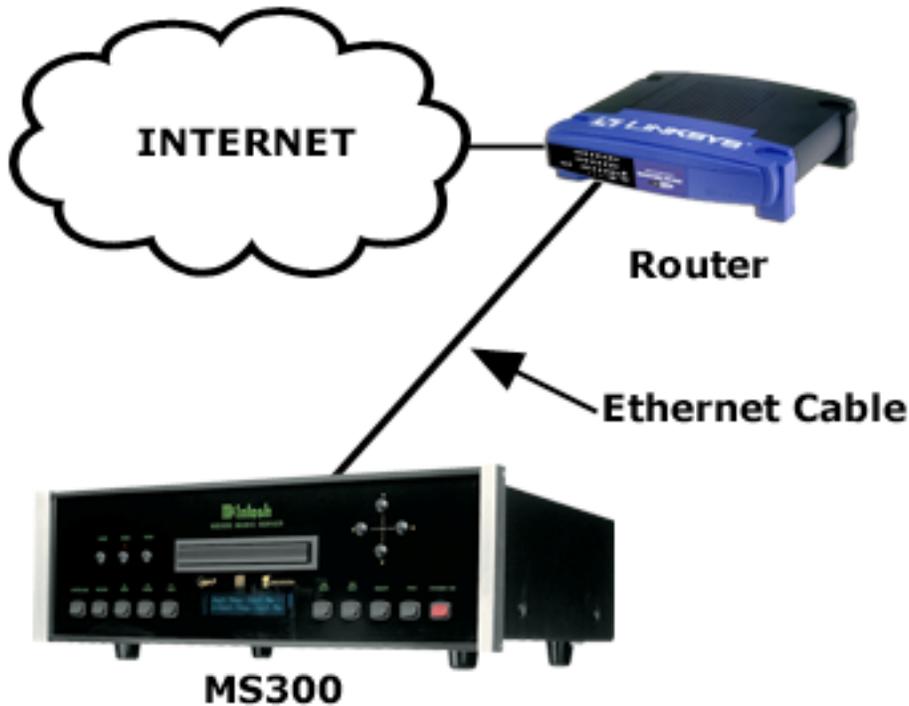
Power Control Connection

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.

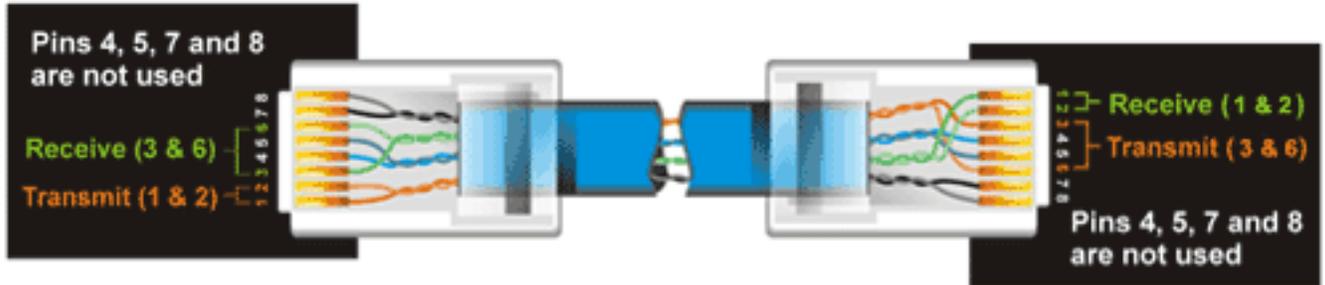
Category 5 cables can be purchased or crimped as either straight-through or crossed. A Category 5 cable has 8 thin, color-coded wires inside that run from one end of the cable to the other. Only wires 1, 2, 3, and 6 are used by Ethernet networks for communication. Although only four wires are used, if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

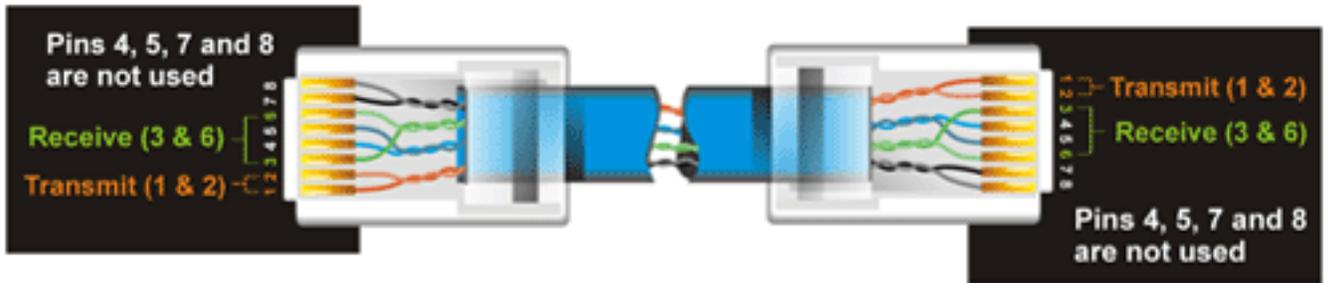
CAT5 cabling should not exceed 100 meters. The following drawing depicts the typical wiring scheme for CAT5. For more information about wiring an Ethernet network, please refer to the [Linksys web site](#).



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

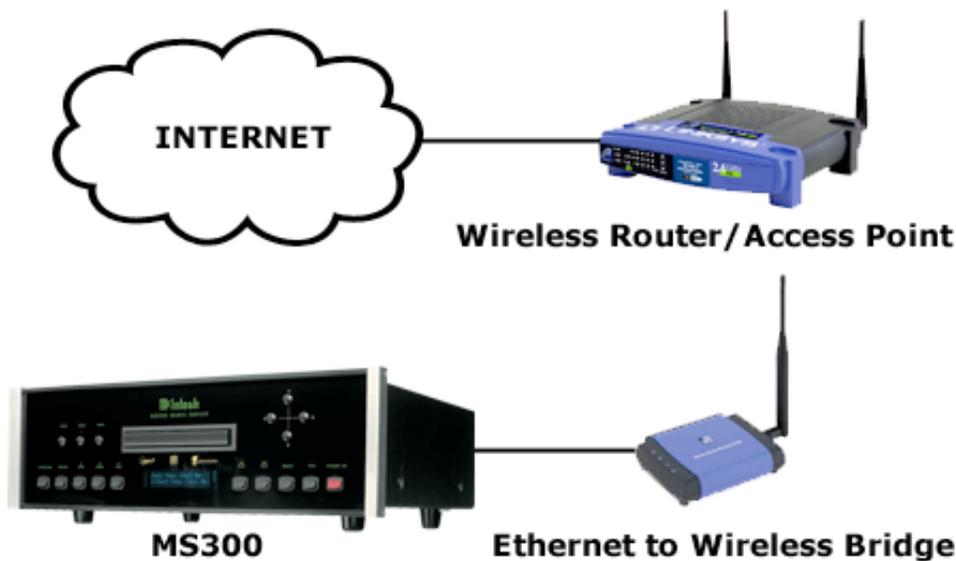
The MS300 contains built-in Ethernet networking and optional external dialup modem support. In addition to these types of network connections, you may want to integrate the MS300 into other networks such as 802.11 Wireless (WiFi), Powerline, or HomePNA (HPNA).

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

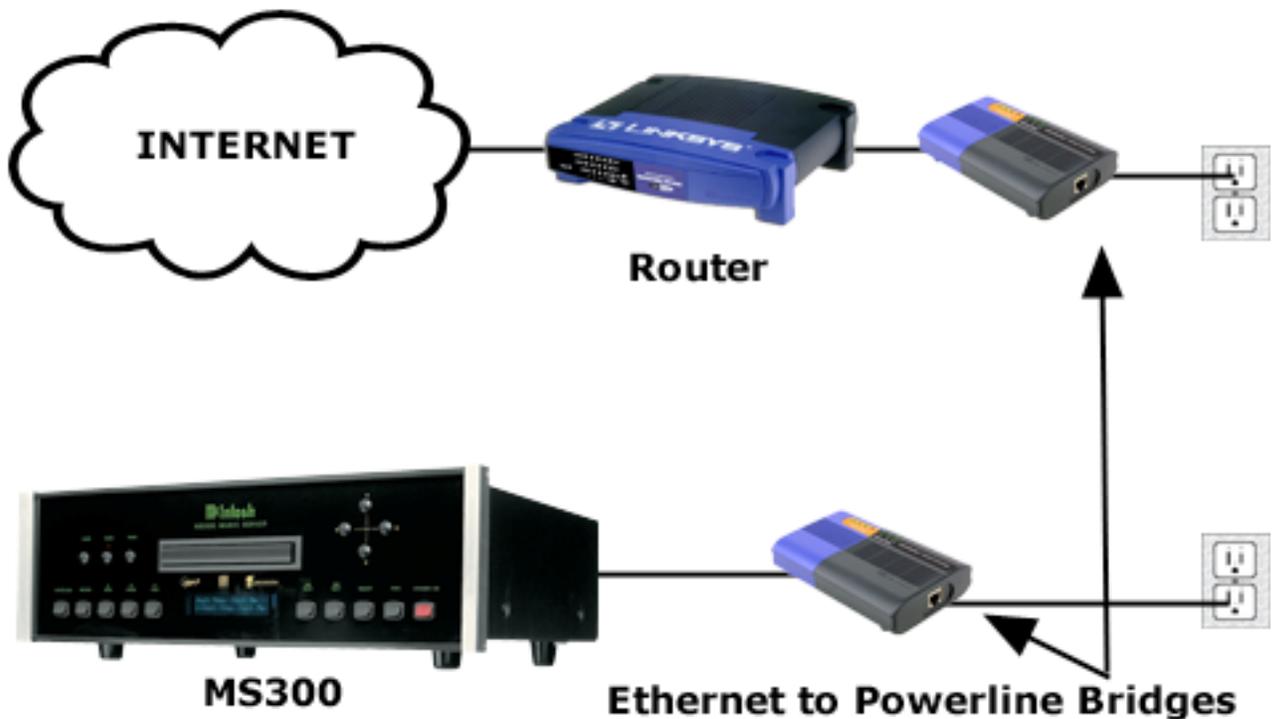
Powerline networking has existed in a few forms in the past, the latest specification is called HomePlug and runs at 14Mbps. HomePlug uses your existing home electrical wiring to transfer data.

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.



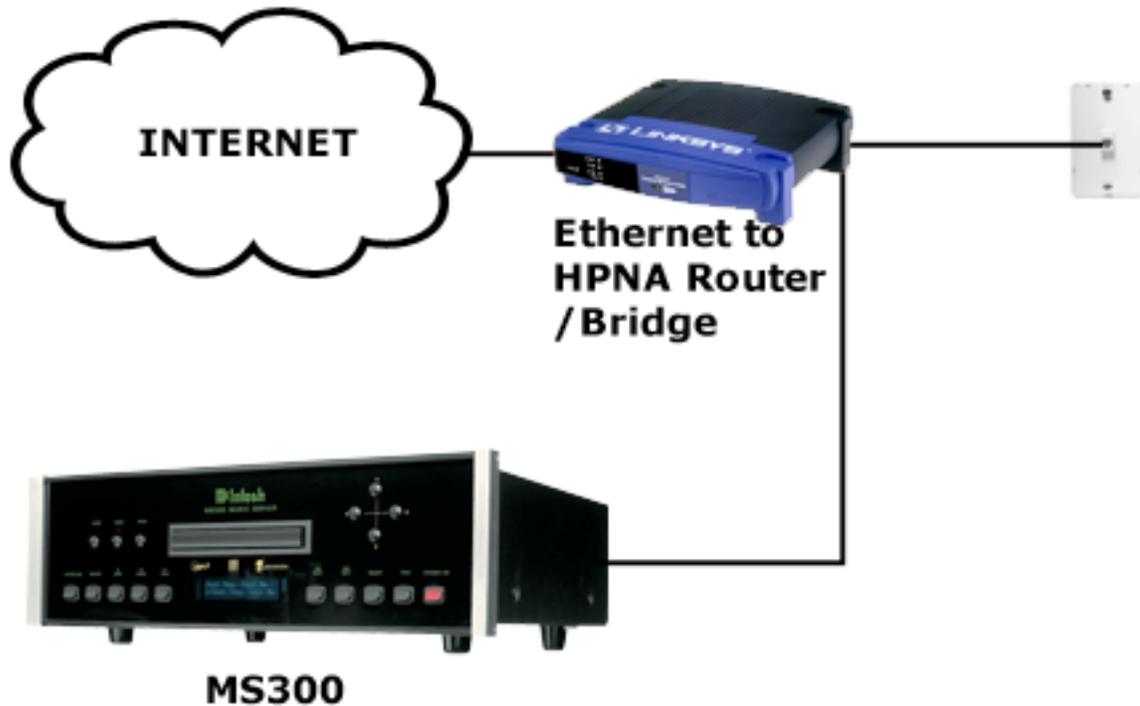
MS300 Connected to a Powerline Network

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 phonenumber 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.

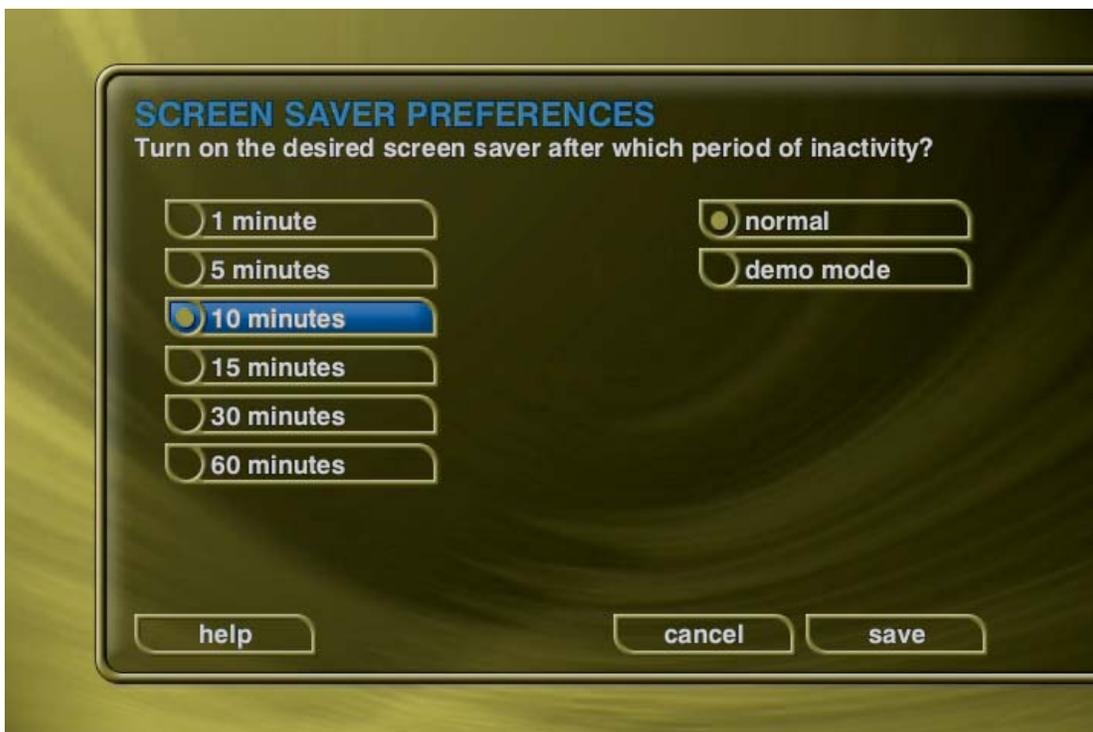
Static IP Addressing is not allowed with a dialup internet connection. Your ISP will supply a dynamic IP address once the connection is established and the user’s account has been authenticated.

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.

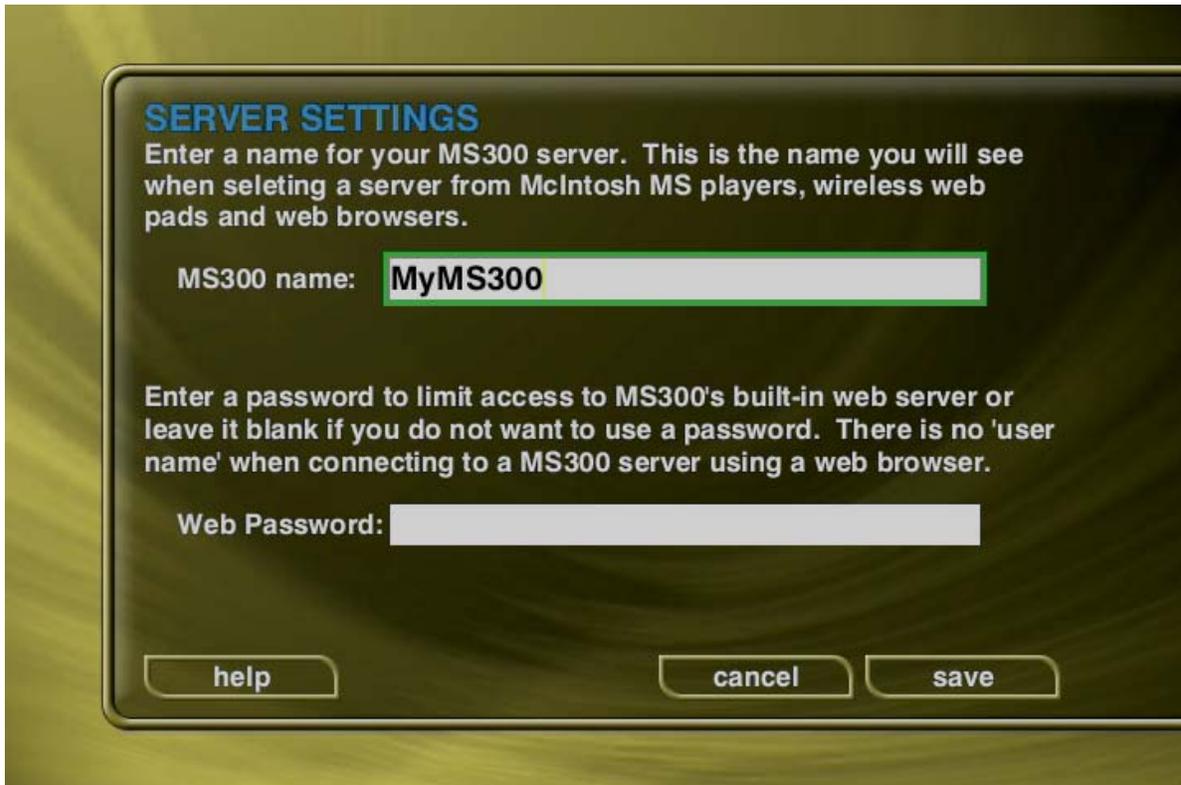
For more information on FLAC, please visit <http://flac.sourceforge.net/>

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 it's 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

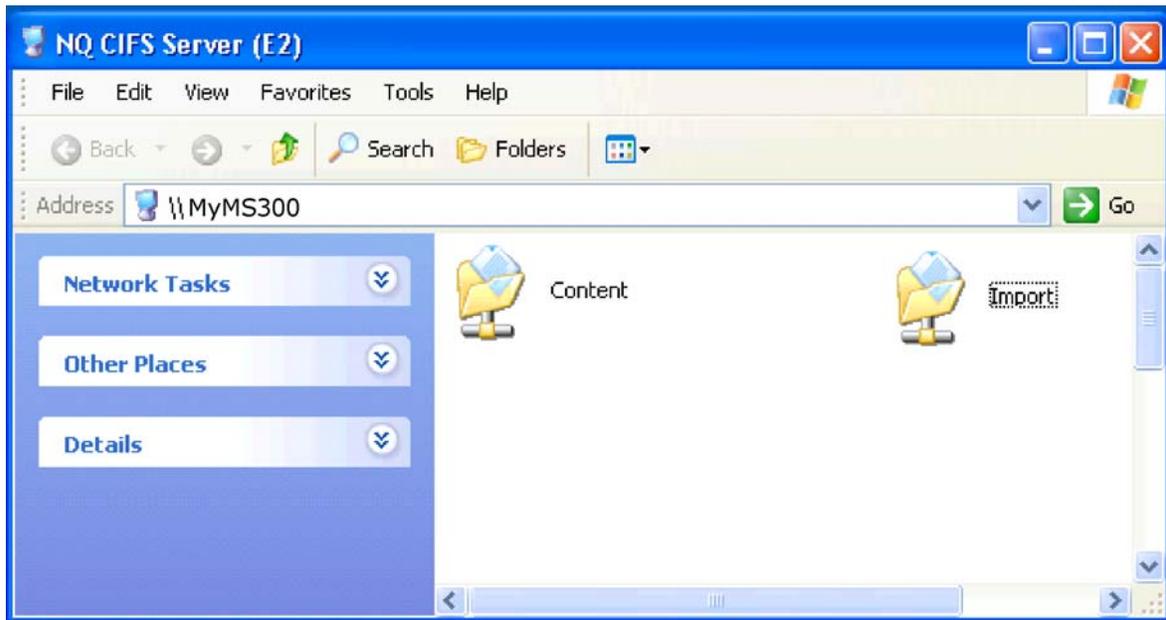
MS300 Music Backup

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.

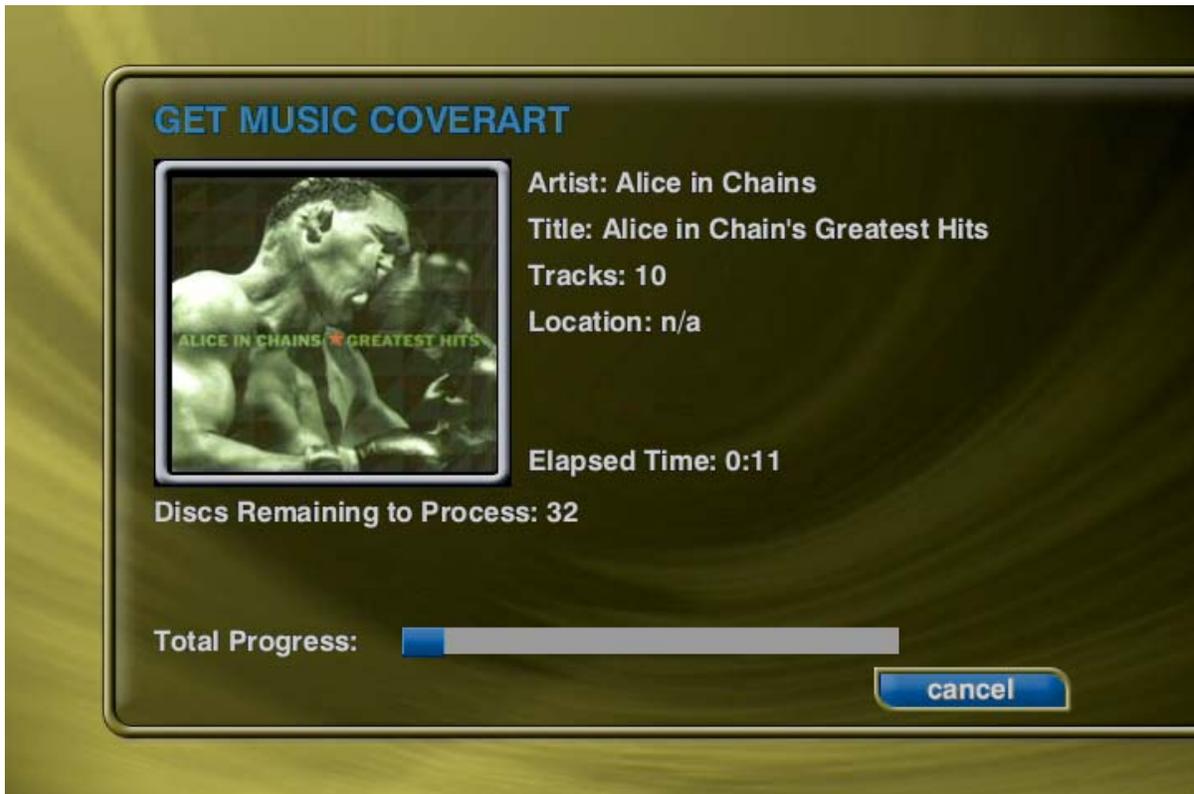
- You should only run this utility when instructed to do so by McIntosh Technical Support personnel.
- Once Rebuild Databases starts, you must wait until it completes, which could be several hours for a large media collection.



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

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

Futuretech 0180
GE 0047, 1347, 0051, 0178, 0451, 1147, 0093
Gibralter 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
Scimitsu 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

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> ESCX02020010002xx, Where xx = 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> ESCX02030010002xx Where xx = 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> ESCX02040070002aa0003bbbccccdddeeeeffffgggghhiiiijjj0002kk aa = the play state 01 = Play, 02 = Stop, 03 = Pause Radio only: 04 = Locating Station, 05 = Buffering data, 06 = Station Not Found bbb = current track number (0 if Radio Mode) cccc = length of artist name ddd = artist name eeee = length of title name fff = title name (station name if Radio Mode) gggg = length of track name hhh = 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 iii = length of track time jjj = current track time (0 if Radio Mode) kk = 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 xx = 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 02 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>xxxx = number of titles in the group YYYY = length of item #2 (length of group name) yyyyyyyyy = group name (length depends on YYYY)</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</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 = group number to get titles for cccc = starting title number dddd = ending title number</p>
		<p><i>Reply Format:</i> ESCX2003xxxTITLE1TITLMS300etc..., Where xxx = total number of titles multiplied by 2, Each title is made up of two items so</p>
		<p>TITLE1 above = 0003xxxyyyyzzzzzzzzzz</p> <p>0003 = length of item #1 (always 3) xxx = number of tracks in the title for Music, running time of title for Movie, bitrate of station for Radio yyyy = length of item #2 (length of title) zzzzzzzzzz = title/radio station (length depends on yyyy)</p>
		TITLMS300, etc... have the same format as TITLE1
20	04	Get track information
20		ESCX20040050002aa0004bbbb0004cccc0004dddd0004eeee
		<p>aa = which list to get groups from, where 01 = System Music Groups 02 = User Music Groups</p> <p>bbbb = group number to get tracks for cccc = title number to get tracks for dddd = starting track number eeee = ending track number</p>
		<p><i>Reply Format:</i> ESCX2004xxxTRACK1TRACK2etc..., Where xxx = total number of tracks, Each TRACK is made of one item so</p>
		<p>TRACK1 = bbbbzzzzzzzz</p> <p>yyyy = length of track name zzzzzzzzzz = track name (length depends on yyyy)</p>
		TRACK2, etc... have the same format as TRACK1
20	05	Play music track/radio station/Playlist

20		<p>ESCX20050040002aa0004bbbb0004cccc0004dddd</p> <p>aa = 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>bbbb = group number cccc = title/station number dddd = track number (ignored for radio)</p>
20	06	Get group number for a specific music, radio, or movie genre by name.
20		<p>ESCX20060020002aaBBBBbbbbbbbb</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 = length of the group name bbbbbbbb = 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"> Alternative Classic Rock Classical Country Eclectic Hip Hop Holiday International Jazz New Age Oldies R&B Religious Soft Rock News/Talk Top 40 Rock Other
20		<p><i>Reply Format:</i> ESCX20060010004xxxx, Where xxxx = group number for the group specified by aaaa</p>
20		<p>Once group number is known, use the 02 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>ESCX20070030002aa0004bbbbccccdddd 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 bbbb = group number to get titles for cccc = length of the title/station/Playlist name dddd = name of title/station/Playlist you want the number for</p>
		<p><i>Reply Format:</i> ESCX2007xxxTITLE1TITLMS300etc..., Where xxx = total number of titles/station/Playlists that match Multiplied by 2, each title is made up of two items so</p>
		<p>TITLE1 above = 0003xxx0004yyyy 0003 = length of item #1 (always 3)</p>

		<p>xxx = 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) zzzz = 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>ESCX20080040002aa0004bbbb0004cccc0004dddd 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 bbbb = group number to get titles for cccc = starting title number dddd = ending title number</p>
		<p><i>Reply Format:</i> ESCX2008xxxTITLE1TITLMS300etc..., Where xxx = total number of titles Each title is made up of one item so</p>
		<p>TITLE1 above = xxxxyyyyyyyyyy xxxx = length of cover art url yyyyyyyyyy = 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>ESCX20090040002aa0004bbbb0004cccc0004dddd 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 bbbb = group number to get titles for cccc = starting title number</p>

		dddd = ending title number
		<i>Reply Format:</i> ESCX2009 xxx TITLE1TITLMS300etc..., Where xxx = total number of titles multiplied by 2, Each title is made up of two or four items so
		For Music and Radio, TITLE1 above = xxxxXXXXyyyyYYYY xxxx = length of item #1 (length of year/channels) XXXX = year of title for Music, audio channels for Radio (length depends on xxxx) yyyy = length of item #2 (length of label/location) YYYY = record label for Music, station location for Radio (length depends on yyyy)
		For Movies, TITLE1 above = WWWWwwwXXXXxxxxYYYYyyyyZZZZzzzz WWWW = length of item #1 (length of year) www = year of title for Movies (length depends on WWWW) XXXX = length of item #2 (length of rating) xxxx = rating of title for Movies (length depends on XXXX) YYYY = length of item #3 (length of cast) yyyy = cast list of title for Movies (length depends on YYYY) ZZZZ = length of item #4 (length of description) zzzz = description of title for Movies (length depends on ZZZZ)
		TITLMS300, etc... have the same format as TITLE1
20	10	Get group names
20		ESCX20100030002 aa 0004 bbbb 0004 cccc 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 bbbb = starting group number cccc = ending group number
20		<i>Reply Format:</i> ESCX2010 xxx GROUP1GROUP2etc..., Where xxx = 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 = xxxxyyyyyyyyyy where

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

Status Commands

COMMAND GROUP	SUB COMMAND	DESCRIPTION
50	01	Get power state
50		<i>Reply Format:</i> ESCX50010010003 xxx , Where xxx = 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 xx , Where xx = 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 xx , Where xx = 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> ESCX5004004aaaabb0004cccc0003ddd0002ee aaaa = length of the title/station that is playing bb = title/station name (length depends on aaaa) cccc = number of the playing title/station in the All group ddd = number of the playing track (000 for movie and radio) ee = 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> ESCX50050010002xx, Where xx = 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>ESCX70010010002xx xx = 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>ESCX7002 ESCX70020010002xx xx = 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		ESCX7003
70	04	Set Music Play Mode
70		ESCX70040010002 xx xx = 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 xx xx = 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		ESCX7006
70	07	Unlock this control interface (leave password protected mode)
70		ESCX7007001 aaaabbbb aaaa = length of security password bbbb = 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>.

Support

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Contact Us: E-mail addresses and phone numbers for Technical Support, Service and Parts Department, literature requests and questions on dealer relations and to e-mail any questions you may have to us.

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Service & Parts: Authorized Service Agency Locator, Service & Parts Department e-mail, phone and fax numbers, Car Audio Service Information and Technical Support.

Service Locator: Locate the nearest Authorized McIntosh Service Agency.

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

Manuals & Literature: Download current product owner's manuals and literature.

Downloads: Download current consumer software. Searchable database.

Warranty Registration: Register your new McIntosh product on-line and view existing product registrations made on the website.

Dealer Login: For Authorized McIntosh Dealers, Distributors and Representatives.

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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 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
 - 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.