

MCS-2A

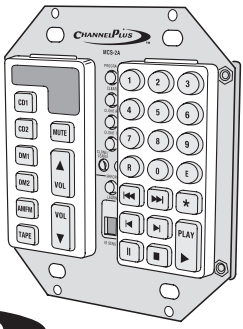
Programmable Zone Controller

For Use with the
Model MDS-6A Music Distribution System

Installation & Operation Instructions



USA & Canada (800) 421-1587 & (800) 392-0123
(760) 438-7000 - Toll Free FAX (800) 468-1340
www.linearcorp.com



1. PRODUCT DESCRIPTION

The MCS-2A Zone Controller is designed as an in-room control for the MDS-6A Music Distribution System. The MDS-6A distributes amplified audio from up to six sources to up to six speaker zones. In a typical installation, an MCS-2A Zone Controller would be installed in each listening room or location to control the speakers in that zone. The MCS-2A mounts in a standard double-gang electrical box and is covered by a standard Decora™ wall plate (neither item is included with the controller).

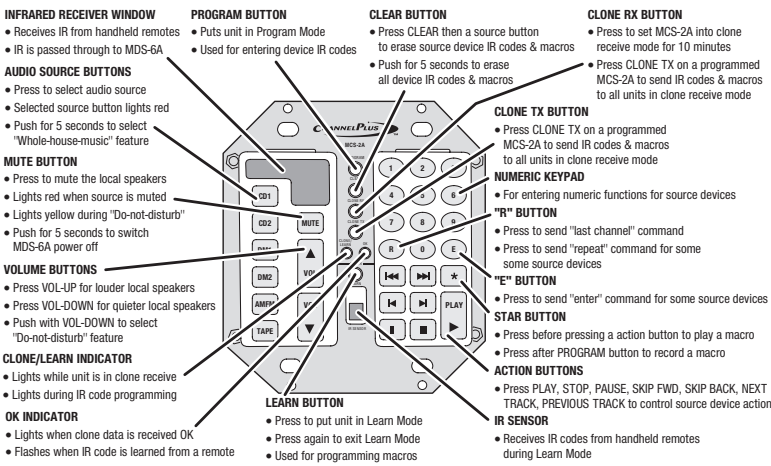
The MCS-2A Zone Controller's source keys are used to select which audio source device (CD, TUNER, TAPE, DVD, DBS, TV, etc.) will be played from its specific speaker zone. The speaker's volume can be adjusted, or muted, using the keys on the Zone Controller. Function keys for PLAY, STOP, PAUSE, SKIP FORWARD, SKIP BACKWARD, NEXT TRACK, and PREVIOUS TRACK are provided to control the source device action. Numeric keys allow direct access to numeric selection functions of the source device. Custom "macros" can be programmed into the MCS-2A to perform multiple commands for a source device by simply pressing ★ then a single key.

Pre-programmed infrared remote control codes for over 500 types of audio sources can be selected for each audio source key. In addition, infrared remote control codes can be "learned" into the Zone Controller directly from the source device's handheld remote control and assigned to almost any key on the controller. To make system setup easy, once the infrared codes are programmed into one Zone Controller, the same codes can easily be sent to other Zone Controllers in the system using the "clone" feature. Any infrared code sent to the MCS-2A from a handheld remote will be repeated to all source devices through the MDS-6A.

Two special features are available for each Zone Controller. The "whole-house-music" feature will play a selected audio source from all of the system's speaker zones. The "do-not-disturb" feature prevents a speaker zone from responding to "whole-house-music" commands from other Zone Controllers and mutes any system wide pages to that speaker zone.

The MCS-2A keys can light in three colors (green, red, & yellow) to show the status of the speaker zone. The optional key backlighting (selectable with dipswitch #1) lights all of the keys with a pleasant green glow. The audio source selection keys will light red to indicate the selected audio source. When "whole-house-music" is selected the designated audio source key lights yellow. The MUTE key normally lights green, then lights red when the speaker zone is muted. The MUTE key blinks yellow when "do-not-disturb" feature is active for the speaker zone and lights yellow when "do-not-disturb" is active and the speaker zone is muted.

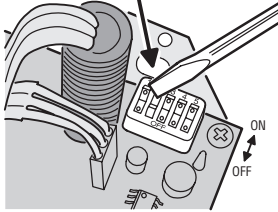
2. COMPONENT LOCATIONS



4. SET THE DIPSWITCH

SET THE DIPSWITCH TO ASSIGN THE CONTROLLER'S SPEAKER ZONE NUMBER AND KEYPAD BACKLIGHT OPTION

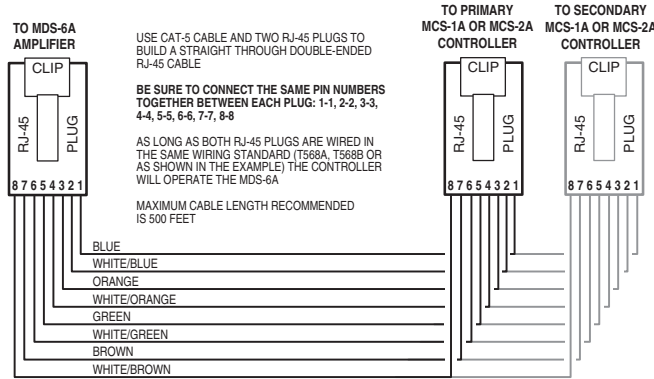
THE MCS-2A CONTROLLER'S SPEAKER ZONE NUMBER MUST MATCH THE NUMBER OF THE MDS-6A ZONE THAT THE CONTROLLER IS CONNECTED TO



WHEN THE CONTROLLER IS ASSIGNED TO A SPEAKER ZONE USING THE DIPSWITCHES AND THE CONTROLLER IS PROPERLY WIRED AND PLUGGED INTO THE CORRESPONDING KEYPAD ZONE, A GREEN LIGHT WILL APPEAR ON THE FRONT OF THE MDS-6A WHEN A SOURCE IS SELECTED INDICATING THAT THE CONTROLLER HAS BEEN PROGRAMMED FOR THAT SPEAKER ZONE. WHEN THERE ARE TWO CONTROLLERS PER SPEAKER ZONE, BOTH CONTROLLERS WILL NEED TO HAVE THE SAME DIPSWITCH SETTINGS FOR THAT SPEAKER ZONE. NOTE: DIPSWITCH #5 IS NOT USED.

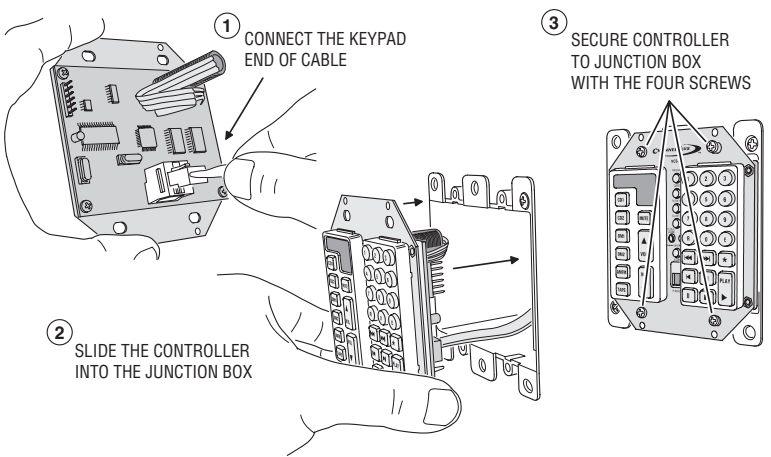
DIPSWITCH SETTINGS					
1	2	3	4	5	ZONE
ON	ON	ON	OFF		ZONE 1
OFF	ON	ON	OFF		ZONE 2
ON	OFF	ON	OFF		ZONE 3
OFF	OFF	ON	OFF		ZONE 4
ON	ON	OFF	OFF		ZONE 5
OFF	ON	OFF	OFF		ZONE 6
#1 ON TURNS KEYPAD BACKLIGHT OFF					
#1 OFF TURNS KEYPAD BACKLIGHT ON					

5. BUILD AND CONNECT THE CABLE



NOTE: UP TO TWO MCS-1A OR MCS-2A CONTROLLERS CAN BE CONNECTED IN PARALLEL TO THE SAME AMPLIFIER ZONE (WIRE ANOTHER CONTROLLER PLUG TO THE SAME CABLE). WHEN ADDING A SECOND CONTROLLER PER SPEAKER ZONE, FOLLOW THE SAME COLOR CODED CONNECTION FOR THE SECOND CONTROLLER.

6. INSTALL THE CONTROLLER INTO A DOUBLE-GANG JUNCTION BOX



8. LEARNING IR CODES FROM HANDHELD REMOTES

THE FOLLOWING BUTTONS CAN BE CUSTOM PROGRAMMED FOR EACH SOURCE BUTTON

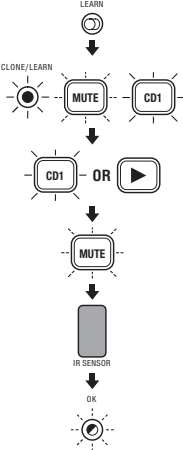
0-9 ► ■ ◀ ▶ ⏮ ⏭ ⏯ R E

FOLLOW THE STEPS TO THE RIGHT TO SELECT A SOURCE BUTTON, THEN CHOOSE A PROGRAMMABLE BUTTON TO LEARN THE INFRARED CODE FROM A HANDHELD REMOTE

NOTE: WHEN USING A HANDHELD REMOTE TO TEACH INFRARED COMMANDS TO THE CONTROLLER, POINT THE HANDHELD REMOTE AT THE CONTROLLER'S IR SENSOR WINDOW BELOW THE LEARN BUTTON FROM ABOUT 2" AWAY OR CLOSER

IMPORTANT: AVOID INFRARED INTERFERENCE (COMPACT FLUORESCENT LIGHTS AND OTHER INFRARED SOURCES) WHEN SENDING CODES TO THE CONTROLLER. INTERFERENCE WILL MAKE IT DIFFICULT TO LEARN THE PROPER CODE.

NOTE: A MAXIMUM OF 25 INFRARED CODES CAN BE LEARNED



- PRESS THE SOURCE BUTTON YOU WANT TO ASSOCIATE THE IR CODES WITH
- PRESS THE LEARN BUTTON
- THE CLONE/LEARN INDICATOR LIGHTS RED, THE MUTE BUTTON FLASHES RED & GREEN, THE SELECTED SOURCE BUTTON LIGHTS YELLOW
- PRESS A DIFFERENT SOURCE BUTTON OR JUST THE PROGRAMMABLE BUTTON **WITHIN 10 SECONDS** (THE CONTROLLER WILL EXIT LEARN MODE IF A BUTTON IS NOT PRESSED IN 10 SECONDS)
- THE MUTE BUTTON FLASHES GREEN
- SEND THE INFRARED CODE FROM THE HANDHELD REMOTE **WITHIN 10 SECONDS** TO TEACH THE SELECTED BUTTON ON THE CONTROLLER
- IF THE CODE IS ACCEPTED, THE OK INDICATOR WILL FLASH GREEN
- GO BACK TO STEP #3 AND REPEAT FOR ANY ADDITIONAL BUTTONS (PRESS LEARN BUTTON AT ANY TIME TO EXIT LEARN MODE)

9. PROGRAMMING RECORDABLE MACROS

PLAYING A RECORDED MACRO CAUSES THE CONTROLLER TO AUTOMATICALLY PERFORM A SEQUENCE OF UP TO 10 BUTTONS

A MACRO IS PLAYED BY PRESSING THE STAR KEY FOLLOWED BY THE SPECIFIC KEY THAT THE RECORDED MACRO IS ASSIGNED TO

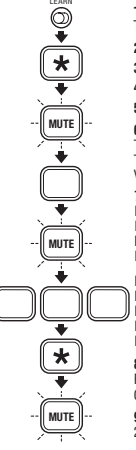
EACH SOURCE BUTTON AND THE FOLLOWING ACTION BUTTONS CAN BE ASSIGNED TO PLAY RECORDED MACROS

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THE BUTTONS AVAILABLE TO RECORD INTO MACROS CAN BE ANY OF THE SOURCE BUTTONS AND THE FOLLOWING ACTION BUTTONS

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NOTE: IF A SOURCE DEVICE HAS A TIME DELAY BETWEEN THE TIME IT RECEIVES ANY I/R COMMAND AND THE TIME IT TAKES TO COMPLETE THAT COMMAND, INSERT A TIME DELAY IN THE MACRO AS SHOWN IN #7

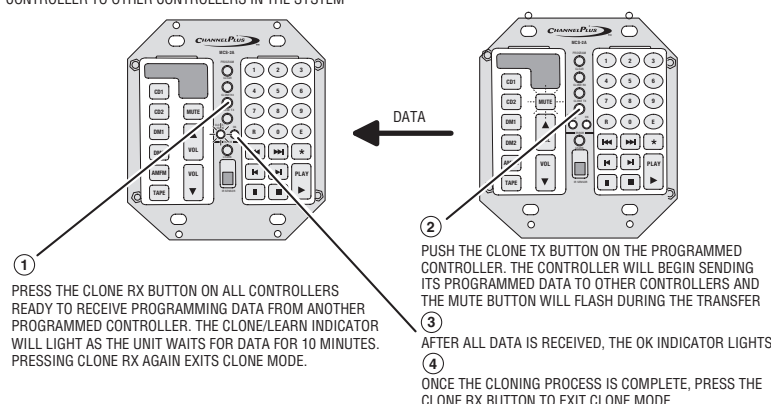


- PRESS THE SOURCE BUTTON YOU WANT TO ASSOCIATE THE IR CODES WITH
- PRESS THE LEARN BUTTON
- THE MUTE BUTTON BLINKS RED & GREEN
- PRESS THE STAR BUTTON
- THE MUTE BUTTON FLASHES GREEN
- WITHIN 10 SECONDS**, PRESS THE BUTTON THAT WILL BECOME THE BUTTON TO PLAY THE MACRO BEING RECORDED (MUST BE A VALID BUTTON)
- RECORD THE MACRO BY PRESSING UP TO 10 BUTTONS IN THE ORDER THE MACRO WILL BE PLAYED (MUST BE VALID BUTTONS) NOTE: PRESS MUTE THEN A DIGIT TO INSERT TIME DELAYS BETWEEN PLAYED MACRO BUTTONS
- PRESS THE STAR BUTTON TO END THE MACRO RECORDING (NOT REQUIRED IF THE MACRO CONTAINS 10 BUTTON ENTRIES)
- MUTE BUTTON FLASHES GREEN FOR 2 SECONDS & THE UNIT EXITS PROGRAM MODE

10. CLONING DATA BETWEEN CONTROLLERS

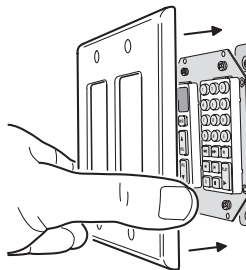
CLONING SAVES INSTALLATION SETUP TIME BY SENDING ALL PROGRAMMING DATA FROM ONE CONTROLLER TO OTHER CONTROLLERS IN THE SYSTEM

CAUTION: CLONING WILL OVERWRITE ALL PROGRAMMED DATA IN THE RECEIVING CONTROLLERS



12. INSTALL THE WALL PLATE

- INSTALL A DOUBLE-GANG DECORA™ WALL PLATE (NOT INCLUDED) TO COVER THE CONTROLLER AND THE INSTALLER SETUP BUTTONS



- SECURE THE WALL PLATE WITH FOUR SCREWS

13. OPERATION

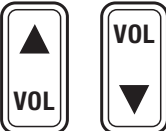
USING THE SOURCE BUTTONS

- Press any source button to turn the MDS-6A power on if it's off
- Press a source button to select the desired audio source for this controller's zone (the selected source button lights red)



USING THE VOLUME BUTTONS

- Press VOL-UP to increase the volume for this controller's speaker zone
- Press VOL-DOWN to decrease the volume for this controller's speaker zone



USING THE MUTE BUTTON

- Press MUTE to silence this controller's speaker zone (the MUTE button lights red)
- Press MUTE again to return this zone's speakers to their previous volume
- Push MUTE for 5 seconds to turn the MDS-6A power off



PLAYING MACROS

- Press the STAR button
- Within 2 seconds, press a button with a recorded macro.
- The recorded macro will play (the MUTE button flashes green during play)



USING THE WHOLE-HOUSE-MUSIC FEATURE

- Push a source button for 5 seconds to turn whole-house-music on or off
- The selected whole-house-music source button lights yellow
- The selected source will play through all system zones



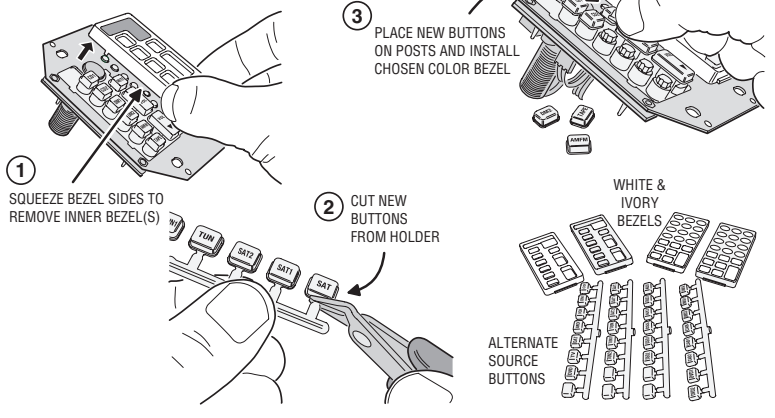
USING THE DO-NOT-DISTURB FEATURE

- Push and hold the VOL-DOWN button, then press the MUTE button to turn the do-not-disturb feature on or off (the MUTE button lights yellow when on)
- When do-not-disturb is on, the zone will **not** play whole-house-music or paging tones



3. CUSTOMIZE THE SOURCE BUTTONS

THE SOURCE BUTTONS AND BEZELS CAN BE CHANGED TO SUIT THE INSTALLATION



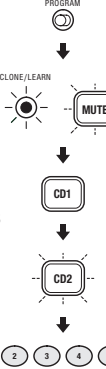
7. ENTERING IR CODES FROM THE DEVICE CODE TABLE

EACH SOURCE KEY SHOULD BE PROGRAMMED WITH A CODE NUMBER TO MATCH A SPECIFIC MANUFACTURER'S AUDIO SOURCE DEVICE

THE CODE NUMBER DESIGNATES WHICH INFRARED CODES WILL BE SENT FROM THE MDS-6A INFRARED EMITTERS WHEN THE SELECTED AUDIO SOURCE DEVICE IS BEING OPERATED FROM THE ZONE CONTROLLER

IF A DEVICE IS NOT LISTED, ITS INFRARED CODES CAN BE LEARNED BY THE ZONE CONTROLLER DIRECTLY FROM A HANDHELD REMOTE CONTROL (SEE SECTION #8 IN THESE INSTRUCTIONS)

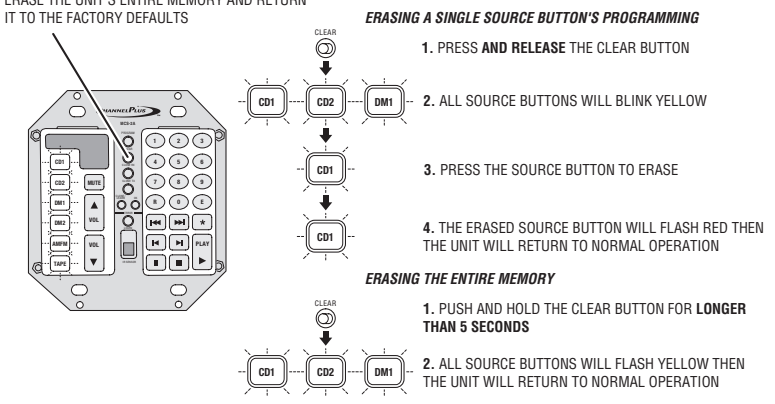
- PRESS THE PROGRAM BUTTON
- THE CLONE/LEARN INDICATOR LIGHTS RED & THE MUTE BUTTON BLINKS RED/GREEN
- PRESS A SOURCE BUTTON **WITHIN 10 SECONDS** (THE CONTROLLER WILL EXIT PROGRAM MODE IF A SOURCE BUTTON IS NOT PRESSED IN 10 SECONDS)
- THE SELECTED SOURCE BUTTON FLASHES RED
- ENTER THE SIX-DIGIT CODE FOR THE DEVICE FROM THE CODE TABLE ON THE BACK OF THESE INSTRUCTIONS (PRESS THE CLEAR BUTTON IF YOU PRESS A WRONG DIGIT AND START OVER)
- GO BACK TO STEP #1 AND REPEAT FOR EACH SOURCE BUTTON



11. ERASING SOURCE BUTTON MEMORY & CLEARING ALL MEMORY

USE THE CLEAR BUTTON TO ERASE THE INFRARED CODES FOR A SINGLE SOURCE BUTTON OR TO ERASE THE UNIT'S ENTIRE MEMORY AND RETURN IT TO THE FACTORY DEFAULTS

CAUTION: PUSHING THE CLEAR BUTTON FOR LONGER THAN 5 SECONDS WILL CLEAR THE UNIT'S ENTIRE MEMORY



LIMITED WARRANTY

Linear LLC warrants this product to be free from defects in material and workmanship for 2 years. The time period will be measured using the date code labeled on the product. Linear LLC is not responsible for damage to the product resulting from the buyer's improper handling, stocking or warehousing of the product. Any implied warranty arising from the sale of the product including implied warranties of merchantability and fitness for purpose are limited. Linear LLC shall not be responsible for any losses, damages or expenses, whether direct, consequential, or incidental arising from the use or the inability to use the product. Some states and countries do not allow limitations or how long an implied warranty lasts or the exclusion or limitation or incidental or consequential damages, so the above exclusions may not apply. The Linear LLC warranty gives specific legal rights in addition to other rights, which may exist and vary from state to state and country to country. The warranty is limited to repair or replacement of products returned, freight prepaid, to Linear LLC, there is NO PROVISION FOR LABOR COST OR OTHER REIMBURSEMENTS OF ANY KIND.

- Failures due to product abuse, such as negligence, improper use, and electrical surge including damage from lightning, water damage or other damage due to natural disasters are not covered by the warranty. The most common form of product abuse is surge damage caused by lightning.
- The warranty shall also be voided by any tampering with the date code, labels or other markings on the product.
- Products that are damaged in transit to Linear LLC due to improper packaging or by the carrier (shipping company) will not be covered under the warranty. If the product was damaged or lost by the carrier, it is the sender's responsibility to create a claim against the carrier.
- The user is responsible for all labor costs associated with removing, reinstalling and returning the product to Linear LLC. Linear LLC, at its option, will repair or replace the defective product. Replacements will be made from B-Stock, if an exact replacement is not available, Linear LLC, at its option, will select the nearest equivalent product. The user is responsible for freight charges to Linear LLC. Linear LLC will return warranted repaired or replacements by UPS Ground or an equivalent service. A customer may pay the additional costs for second-day or next-day service. All products returned for warranty service require a Return Product Authorization Number (RPA#). Contact Linear Technical Services at 1-800-999-5225 for an RPA# and other important details.

Compact Disc (CD) Players		
Manufacturer	Code Number	
Aiwa	090157	
California Audio Labs	090029	
Carver	090157, 090179	
Classic	091297	
DKK	090000	
DMX Electronics	090157	
Denon	090873	
Emerson	090305	
Fisher	090179	
GPX	091296	
Genexxa	090032, 090305	
Harmon/Kardon	090157, 090173	
Hitachi	090032	
JVC	090072, 091294	
Kenwood	090681, 090826, 090626, 090028, 090037	
Koss	091317	
Krell	090157	
LXI	090305	
Linn	090157	
MCS	090029	
Magnavox	090157, 090305	
Marantz	090626, 090029, 090157	
Miro	090000	
Mission	090157	
NSM	090157	
Onkyo	090868	
Optimus	091063, 090000, 090032, 090037, 090179, 090305	
Panasonic	090029	
Phillips	090626, 090157	
Pioneer	091063, 091062, 090032, 090305	
Polk Audio	090157	
Proton	090157	
QED	090157	
Quasar	090029	
RCA	091062, 090032, 090179, 090305	
Realistic	090179	
Rotel	090157	
SAE	090157	
Sansui	090157, 090305	
Sanyo	090179	
Scott	090305	
Sears	090305	
Sharp	090861, 090037	
Sherwood	091067	
Sonic Frontiers	090157	
Sony	090490, 090000, 090100	
TDK	091208	
Technics	090029	
Victor	090072	
Wards	090157	
Yamaha	090888, 091292	

Audio/Video (A/V) Receivers		
Manufacturer	Code Number	
ADC	070531	
Aiwa	071089, 071405, 070158, 071388	
Alco	071390	
Anam	071609	
Apex Digital	071257	
Audiotronic	071189	
Audiovox	071390	
Bose	071229	
Capetronic	070531	
Carver	071089, 071189	
Denon	071104, 071160, 071360	
JBL	071306	
JVC	070074	
KLH	071390	
Kenwood	071313, 071027, 071570, 071569, 070027	
Koss	071366	
MCS	070039	
Magnavox	071089, 071189, 070531	
Marantz	071089, 071189, 070039	
Musicmagic	071089	
Onkyo	070135, 070842, 071298	
Optimus	071023, 070531	
Panasonic	071518, 070039, 071288	
Philips	071089, 071189, 071269, 071283	
Pioneer	071023, 070014, 070531	
Proscan	071254	
Quasar	070039	
RCA	071023, 071254, 070531, 071390, 071609	
Sansung	071295	
Sansui	071089	
Sherwood	071653	
Sony	071058, 071258, 071158, 070158	
Stereophonics	071023	
Sunfire	071313	
Technics	071308, 071309, 071518, 070039	
Thorens	071189	
Venturer	071390	
Victor	070074	
Wards	070014, 070158	
Yamaha	070176, 071176	

Digital Video Disc (DVD) Players		
Manufacturer	Code Number	
Aiwa	060641	
Apex Digital	060672, 060755, 060794, 060795, 060796, 060797, 060830	
Blue Parade	060571	
Broksonic	060695	
Deawoo	060784	
Denon	060490, 060634	
Emerson	060591	
Enterprise	060591	
Fisher	060670	
GE	060522	
Go Video	060715, 060783	
Gradiente	060651	
Harmon/Kardon	060582, 060702	
Hitachi	060573, 060664	
Hiteker	060672	
JBL	060702	
JVC	060558, 060623, 060867	
Kenwood	060534, 060682	
Konka	060711, 060719, 060720, 060721	
Koss	060651	
Lasonic	060798	
Magnavox	060503, 060675	
Malata	060782	
Marantz	060539	
Microsoft	060522	
Mitsubishi	060521	
Onkyo	060503, 060627	
Orltron	060651	
Panasonic	060490, 060632	
Philips	060503, 060539, 060646, 060854	
Pioneer	060525, 060571, 060632	
Princeton	060674	
Proscan	060522	
RCA	060522, 060571, 060822, 061022	
Rowa	060823	
Sampo	060698	
Samsung	060573, 060820	
Sansui	060695	
Sanyo	060670	
Sharp	060630	
Sherwood	060633	
Sony	060533, 061533	
Sylvania	060821	
Technics	060490	
Techwood	060692	
Theta Digital	060571	
Toshiba	060503, 060695, 061045	
Urban Concepts	060503	
Yamaha	060490, 060545, 060817	
Zenith	060503, 060591	

Satellite (DBS) Receivers		
Manufacturer	Code Number	
AlphaStar	030772	
Chaparral	030216	
Crossdigital	031309	
Echostar	031105, 030775	
Expressvu	030775	
GE	030566	
GOI	030775	
General Instrument	030869	
HTS	030775	
Hitachi	030819	
Hughes Network Systems	031142, 030749, 031749	
JVC	030775	
Magnavox	030724, 030722	
Memorex	030724	
Mitsubishi	030749	
Motorola	030869	
Next Level	030869	
Panasonic	030247, 030701	
Paysat	030724	
Philips	031142, 030749, 030724, 031076, 030722, 031749	
Proscan	030392	
RCA	030392, 030566, 030855, 030143	
RadioShack	030869	
Samsung	031109	
Sony	030639	
Star Choice	030869	
Toshiba	030749, 030790, 031749	
Uniden	030724, 030722	
Zenith	030856, 031856	

Miscellaneous Audio Devices		
Manufacturer	Code Number	
Aiwa	100010, 100159	
Jerrold	100520, 100459	
Scientific Atlanta	100460	
Sony	100010, 100159	
Starcom	100459	

VIDEO CASSETTE RECORDERS (VCR)	
MANUFACTURER	CODE NUMBER
Admiral	040048, 040209
Adventura	040000
Aiko	040278
Aiwa	040037, 040000
Akai	040041
American Action	040278
American High	040035
Asha	040240
Audiovox	040037
Beaumark	040240
Bell & Howell	040104
Broksonic	040184, 040121, 040209, 040002, 040479, 041479
CCE	040072, 040278
Calix	040037
Canon	040035
Carver	040081
Cineral	040278
Citizen	040037, 040278, 041278
Colt	040072
Craig	040037, 040047, 040240, 040072
Curtis Mathes	040060, 040035, 040162, 040041, 040760, 041035
Cybernex	040240
Daewoo	040045, 040278, 041278
Denon	040042
Dynatech	040000
Electrohome	040037
Electrophonic	040037
Emerex	040032
Emerson	040037, 040184, 040000, 040121, 040043, 040209, 040002, 040278, 040479, 041278, 041479
Fisher	040047, 040104
Fuji	040035
Funai	040000
GE	040060, 040035, 040048, 040240, 040760, 040807, 041035, 041060
Garrard	040000
Go Video	040432
GoldStar	040037, 040038, 041237
Gradiente	040000
HI-Q	040047
Harley Davidson	040000
Harmon/Kardon	040081, 040038
Harwood	040072
Hitachi	040000, 040042, 040041
Hughes Network Systems	040042
JVC	040067, 040041
Jensen	040041
KEC	040037, 040278
KLH	040072
Kenwood	040067, 040041, 040038
Kodak	040035, 040037
LXI	040037
Lloyd's	040000
Logik	040072
MEI	040035
MGA	040240, 040043
MGN Technology	040240
MTC	040240, 040000
Magnasonic	040278, 041278
Magnavox	040035, 040039, 040081, 040000, 040149, 040563, 041781
Magnin	040240
Marantz	040035, 040081
Marta	040037
Matsushita	040035, 040162, 040454
Memorex	040035, 040162, 040037, 040048, 040039, 040047, 040240, 040000, 040104, 040209, 040454, 040479, 041037, 041162, 041237, 041262
Minolta	040042
Mitsubishi	040048, 040067, 040043, 040807
Motorola	040035, 040048
Multitech	040000, 040072
NEC	040104, 040067, 040041, 040038
Nikko	040037
Noblex	040240
Olympus	040035
Optimus	041062, 040162, 040037, 040048, 040104, 040432, 040454, 041048, 041162, 041262
Orion	040184, 040209, 040002, 040479, 041479
Panasonic	041062, 040035, 040162, 040225, 040454, 040616, 041035, 041162, 041262
Penney	040035, 040037, 040240, 040042, 040038, 041035, 041237
Pentax	040042
Philco	040035, 040209, 040479
Philips	040035, 040081, 040618, 041081, 041181
Pilot	040037
Pioneer	040067
Polk Audio	040081
Profitronic	040240
Proscan	040060, 040760, 041060
Protec	040072
Pulsar	040039
Quasar	040035, 040162, 040454, 041035, 041162
RCA	040060, 040035, 040048, 040240, 040042, 040149, 040760, 040807, 041035, 041060