

DMD
Device Matching Driver
Operation Manual

advantage ®

DMD

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INTRODUCTION

The ADVANTAGE® **DMD** Device Matching Driver provides four channels of signal balancing and level conversion, allowing interconnection of devices which have different input/output capabilities. Proper interface between balanced/unbalanced and line/mic devices is made possible. The DMD is designed to be used with other SYSTEM ONE modules or in any sound system. The DMD carries a Five-Year "Gold Seal" Warranty.

DMD features include:

- ◆ four independent channels of device matching functions
- ◆ provides unbalanced input to balanced output conversion
- ◆ provides balanced input to unbalanced output conversion
- ◆ provides line level or mic level output from a line level input
- ◆ internal jumper sums channel 1 input to channel 2 output
- ◆ internal jumpers sum any or all inputs to channel 4 output
- ◆ balanced differential input & balanced cross-coupled output
- ◆ plug-in barrier strip on each channel for easy connection
- ◆ one TRS 1/4" jack provides input & output on each channel
- ◆ TRS 1/4" patch insert jacks are provided on each channel
- ◆ DC In/Out jacks for use with other SYSTEM ONE modules
- ◆ optional power supply allows independent use in any system
- ◆ incorporates **AES** recommended grounding practices
- ◆ **CE** marked and **UL / C-UL** listed power source
- ◆ covered by Five-Year "Gold Seal" Warranty



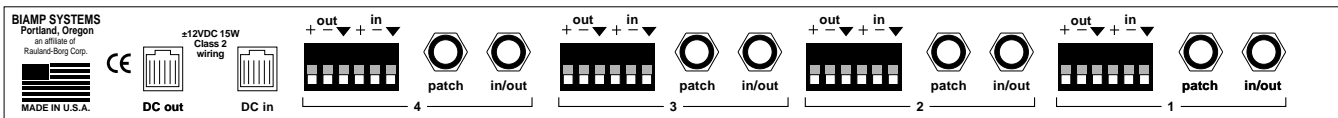
After reading this manual, if you have any questions or need technical assistance, please call Biamp Systems toll-free **1-800-826-1457**.



FRONT & REAR PANELS



(1)



(2)

(3)

(4)

(5)

(6)

(7)

(1) On Indicator: This red LED indicates power is applied to the module (see DC In below).

(2) DC Out: This Modular jack supplies ± 12 Volts DC power for additional DMD (or System One) modules. When powering multiple modules from a single power source, connect DC Out of the first module to DC In of the second module, and so forth (see DC In below).

(3) DC In: This Modular jack accepts ± 12 Volts DC power from other Advantage products, or from an optional 12V power supply. An Advantage DMD typically requires 75 mA of current. When powering multiple modules from a single power source, check the current capability of the power source. If the combined current requirement of the multiple modules exceeds the current capability of the power source, then additional power supplies may be needed. The optional 12V power supply has a typical current capability of 165 mA.

(4) Out: These three screw terminals provide an electronically balanced, cross-coupled output from the channel. The screw terminals are provided on a plug-in barrier strip, which allows pre-wiring of cables before installation. For balanced connections, wire high to (+), low to (-), and ground to (\blacktriangledown). For unbalanced connections, wire high to (+) and ground to both (-) & (\blacktriangledown). From the factory, these outputs provide line-level signals. However, internal jumpers allow each output to be independently attenuated (-60dB) for microphone-level applications (see Jumper Options on page 3). Internal jumpers also allow Channel 1 input signal to be assigned to Channel 2 Out, and Channel 1-3 input signals to be individually assigned to Channel 4 Out (see Jumper Options on page 3). Channel 2 Out & Channel 4 Out provide a combination of all input signals which have been assigned to them, while Channels 1 & 3 maintain their individual output capabilities.

(5) In: These three screw terminals provide an electronically balanced, differential input to the channel. The screw terminals are provided on a plug-in barrier strip, which allows pre-wiring of cables before installation. For balanced connections, wire high to (+), low to (-), and ground to (\blacktriangledown). For unbalanced connections, wire high to (+) and ground to both (-) & (\blacktriangledown). These inputs accept line-level signals only. Input signals from Channels 1-3 may be assigned to appear at Channel 4 Out (see Jumper Options on page 3).

(6) Patch: These 3-conductor TRS 1/4" Phone jacks are for connection of the channel input signals to other Advantage products (or signal processors). Patch jacks are unbalanced, and are wired with Tip being Send, Ring being Return, and Sleeve being Ground. When connecting Patch jacks to In/Out jacks of other System One products, use 3-conductor TRS 1/4" Phone cables (available from Biamp). Connection to a Patch jack may also be made using a special 'Y' cable. Patch jacks are independent from the channel Out terminals, so any signal processing inserted into Patch jacks will not affect the Out signals. Instead, Patch jacks simply provide an additional insert point for the input signal path. A Patch jack may also be used (with a standard 2-conductor TS 1/4" Phone cable) as an independent output from the channel. *NOTE: Channel 1 input signal which is assigned to Channel 2 Out will not appear at Channel 2 Patch. Likewise, Channel 1-3 signals which are assigned to Channel 4 Out will not appear at Channel 4 Patch.*

(7) In/Out: These 3-conductor TRS 1/4" Phone jacks provide both input and output of the channels for connection to other Advantage products (or other mixers). In/Out jacks are unbalanced, and are wired with Tip being Input, Ring being Output, and Sleeve being Ground. When connecting In/Out jacks to Patch jacks of other System One products, use 3-conductor TRS 1/4" Phone cables (available from Biamp). This same connection may be made to any mixer having Patch jacks identical to System One products. Connection to a In/Out jack may also be made using a special 'Y' cable. If only 2-conductor TS 1/4" Phone cables are available, an In/Out jack may be used as the input, while the associated Patch jack is used as the output.

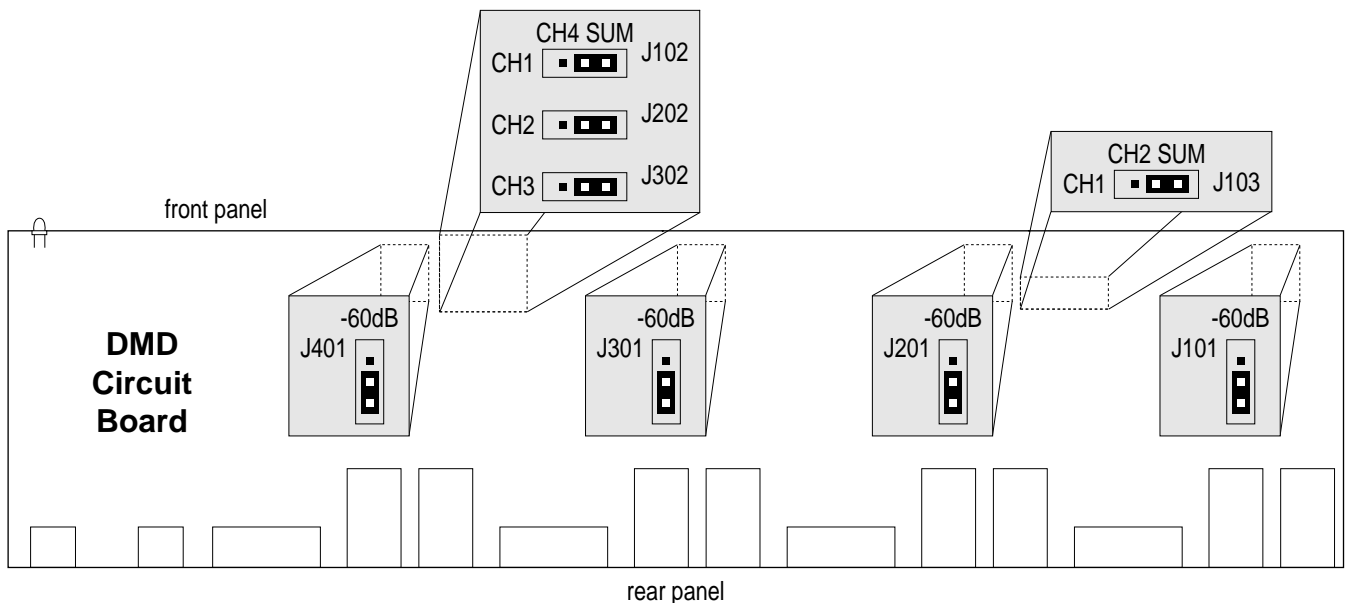
JUMPER OPTIONS

To access internal jumper options: A) remove any power connections to the module; B) place the module on a flat surface with the top panel facing up and the front panel facing away; C) remove all screws from the top panel; D) remove the top panel.

Microphone Level Output: From the factory, the Out terminals for each channel provide line-level signal. Internal jumpers allow each output to be independently attenuated (-60dB) for microphone-level applications. This attenuation of output signal level only occurs at the Out terminals for each channel (In terminals, In/Out jacks, and Patch jacks operate strictly at line-level). Any or all of Channels 1~4 may be assigned output attenuation by moving jumpers J101~J401 forward one pin (J101 is for Channel 1, J201 is for Channel 2, J301 is for Channel 3, and J401 is for Channel 4). See diagram below.

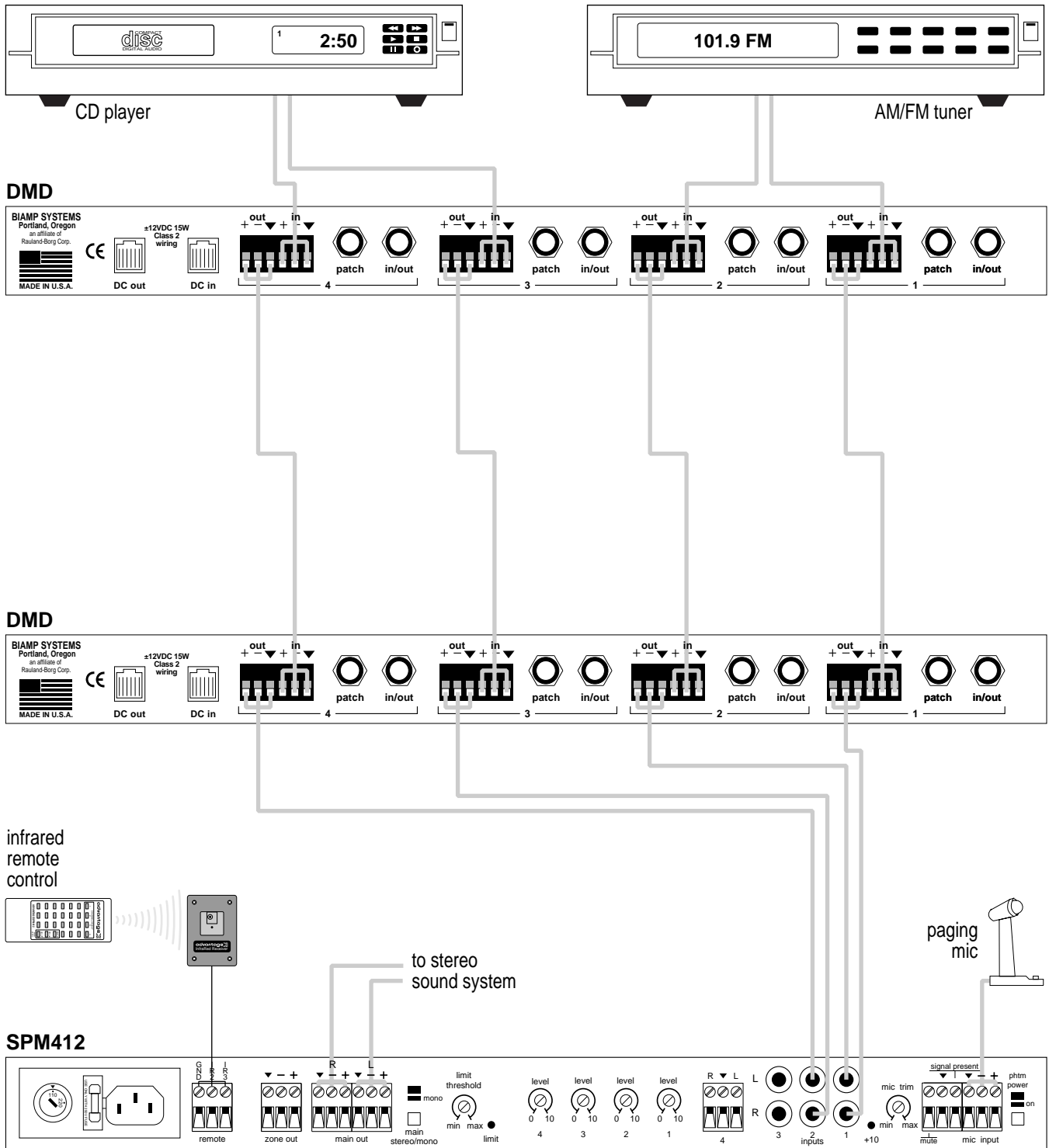
Channel 2 Summing: From the factory, the Out terminals for each channel provide only the signal which appears at the input to that channel. An internal jumper allows input signal from Channel 1 to be assigned to Channel 2 Out. Channel 2 Out will then provide a combination of both Channel 1 & Channel 2 input signals, while Channels 1, 3, & 4 will continue to maintain their individual output capabilities. *NOTE: Channel 1 signal which has been assigned to Channel 2 Out will not appear at Channel 2 Patch.* Channel 1 may be assigned to Channel 2 Out by moving jumper J103 left one pin. See diagram below.

Channel 4 Summing: From the factory, the Out terminals for each channel provide only the signal which appears at the input to that channel. Internal jumpers allow input signals from Channels 1~3 to be individually assigned to Channel 4 Out. Channel 4 Out will then provide a combination of all the input signals which have been assigned to it, while Channels 1~3 will continue to maintain their individual output capabilities. *NOTE: Channel 1~3 signals which have been assigned to Channel 4 Out will not appear at Channel 4 Patch.* Any or all of Channels 1~3 may be assigned to Channel 4 Out by moving jumpers J102~302 left one pin (J102 is for Channel 1, J202 is for Channel 2, and J302 is for Channel 3). See diagram below.



APPLICATIONS

Bar Sound System with Remote Equipment Rack

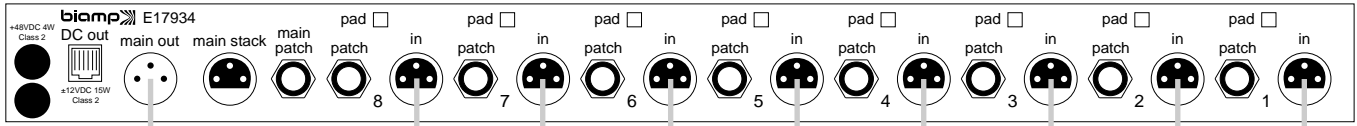


This application shows two stereo music sources and a paging microphone, which are located at the bar for easy access. The remainder of the sound system (an ADVANTAGE® SPM412, equalizers, & amplifiers) is installed in a remote equipment rack to prevent tampering. Source selection, volume adjustments, and paging-over-music are accomplished via remote control of the SPM412. The outputs from the music sources and the inputs to the SPM412 are unbalanced. Therefore, an ADVANTAGE® DMD module is used (at the bar) to balance the music sources before they are sent to the remote equipment rack. A second DMD module (at the rack) accepts the balanced music signals from the first DMD, and provides the unbalanced outputs necessary for connection to the SPM412.

APPLICATIONS

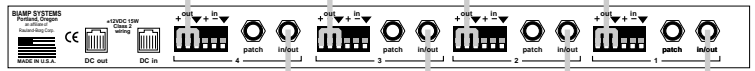
Church Sound System with Choir Monitor Mixer

ONE

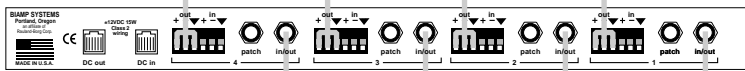


to choir monitor sound system

DMD

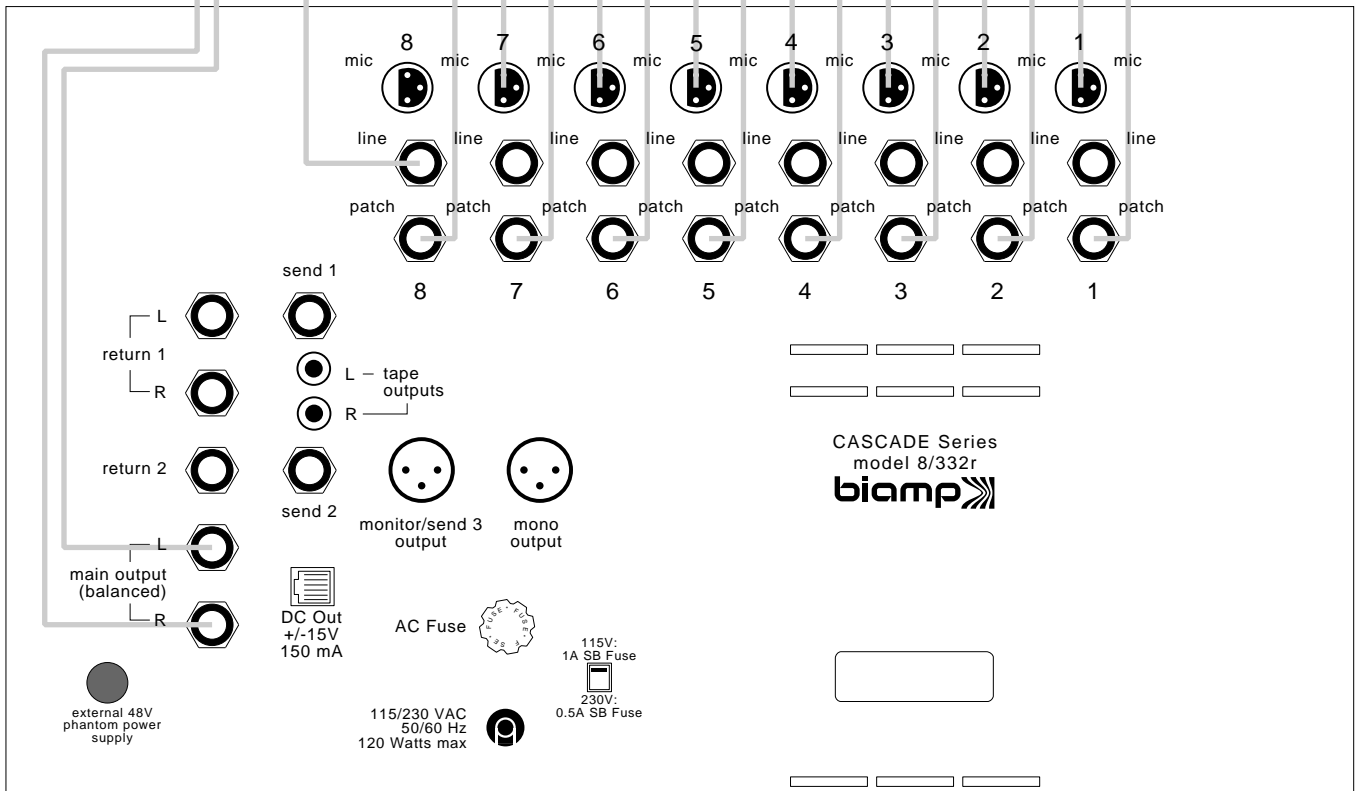


DMD



to main house sound system

CASCADE 8/332r

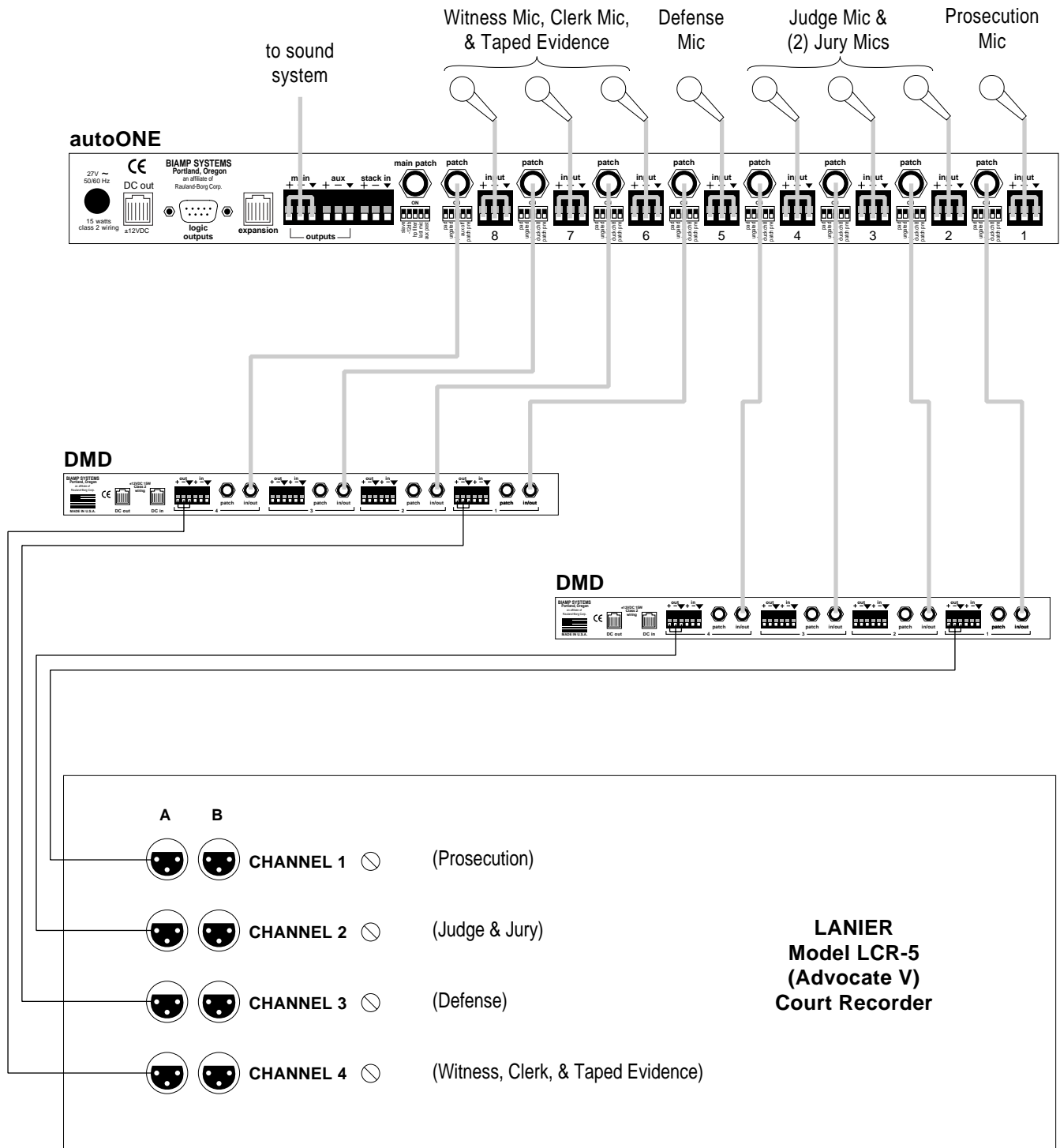


speech & choir mics plus music playback

This application shows a BIAMP® Cascade 8/332r mixer accepting inputs from speech and choir microphones, as well as a tape deck for music playback. The Cascade mixer is installed at the rear of the church, and is used to mix for the main house sound system. An ADVANTAGE® ONE mixer is installed in the choir loft to allow an independent mix for the choir monitor sound system. The Patch jacks of the Cascade mixer are connected to the In/Out jacks of two ADVANTAGE® DMD modules. The two DMD modules then provide a balanced line-level (or mic-level) output from each channel of the Cascade mixer, to be sent to the choir loft. These balanced signals are then connected to the inputs of the ONE mixer, which provides independent monitor mixing at the choir loft location.

APPLICATIONS

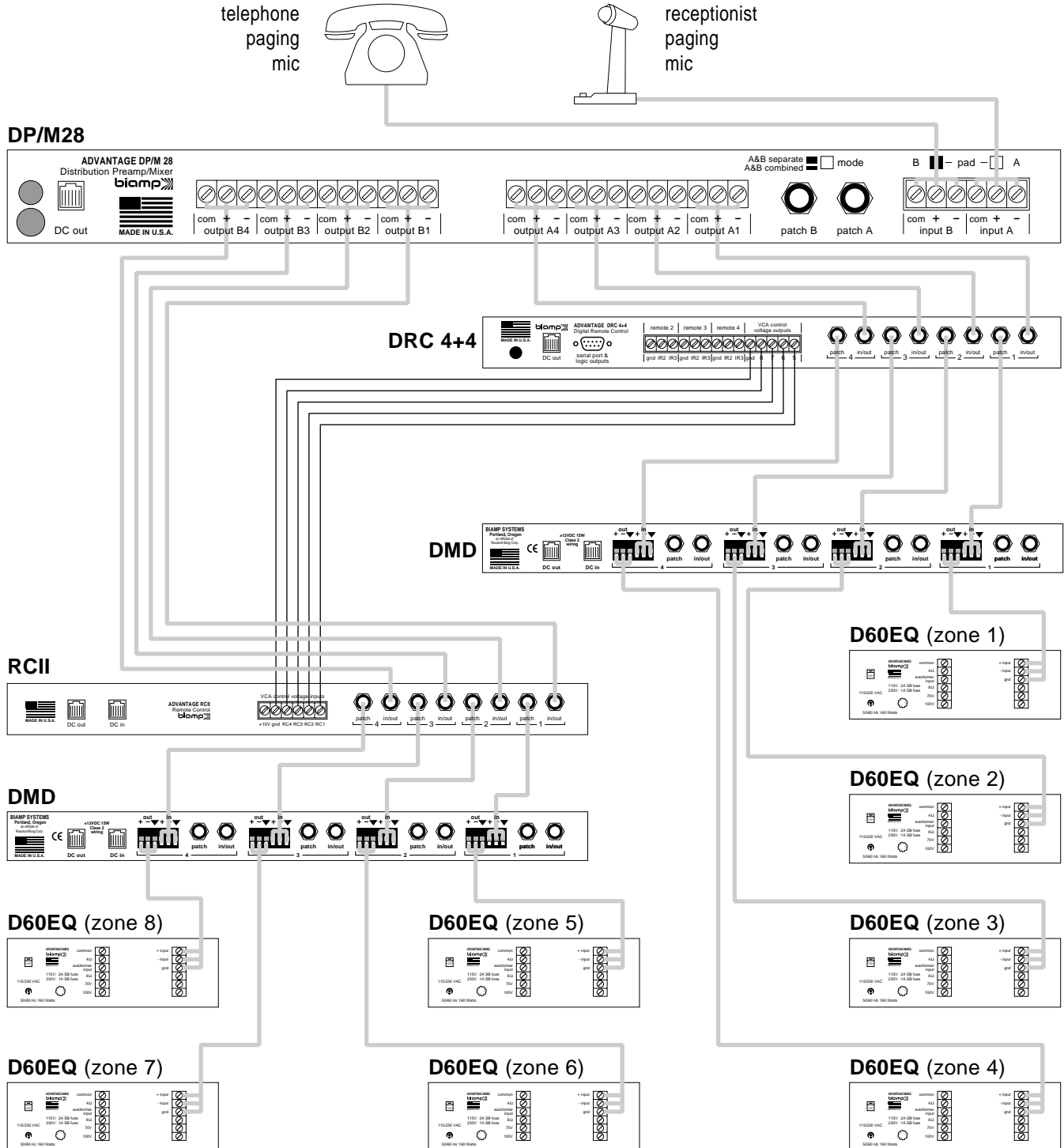
Courtroom Sound System with 4-Channel Recorder



This application shows an ADVANTAGE[®] autoONE 8-channel automatic mixer. The output of this mixer feeds the courtroom sound system. However, a 4-channel court recorder is required to record the court proceedings for future transcription. Therefore, two ADVANTAGE[®] DMD modules are connected at the individual channel Patch jacks of the autoONE, which are set for 'pre gate' signal via the rear panel DIP switches. The DMD modules then provide 'non-gated' balanced microphone-level outputs, which are required for the court recorder. In addition, each DMD module has internal jumpers which are assigned to route input signals from Channels 2-4 to the Channel 4 output. This allows a specific grouping of signals to be assigned to each of the channels of the court recorder.

APPLICATIONS

Office Paging System with 8 Zones

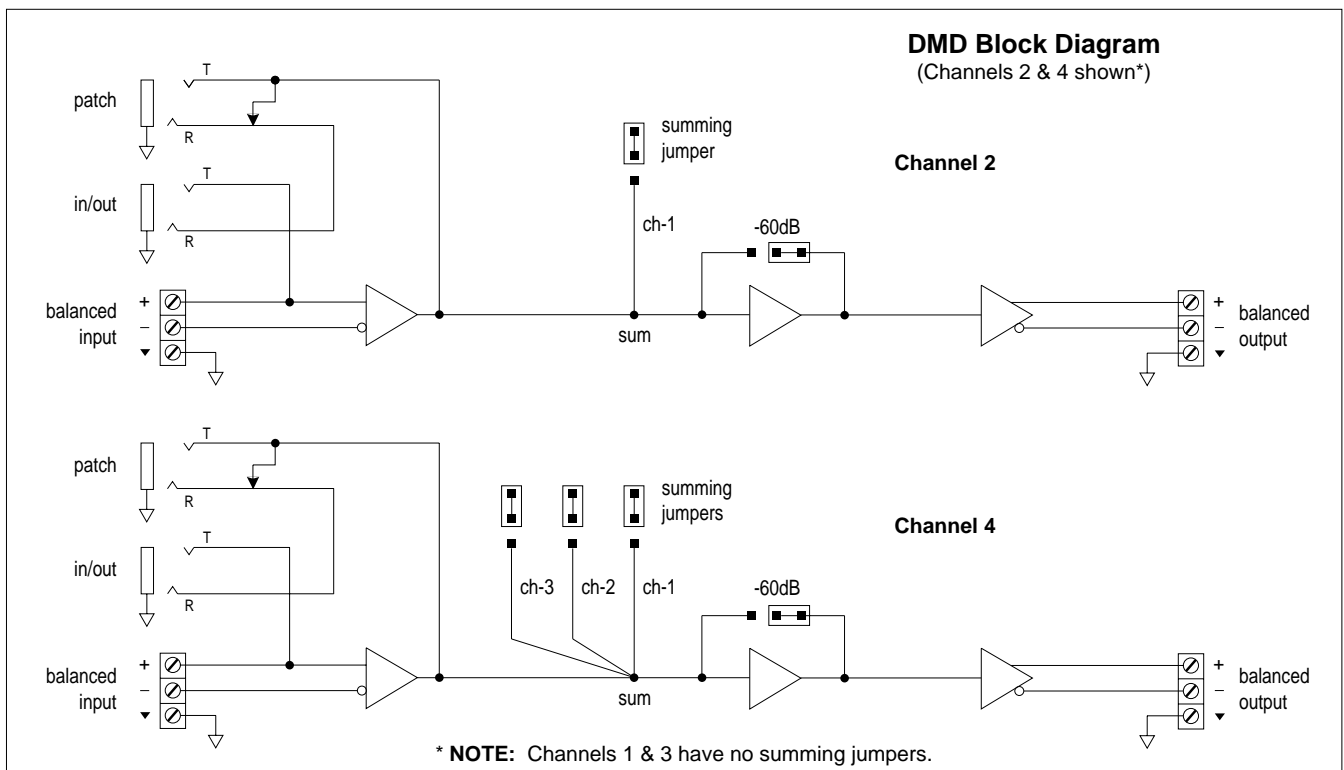


This application shows an ADVANTAGE[®] DP/M28 accepting input from both a telephone paging line and a receptionist paging microphone. These paging signals are then combined and distributed to the eight outputs. An ADVANTAGE[®] DRC 4+4 and an ADVANTAGE[®] RCII are installed at the outputs of the DP/M28 to provide remote control of zone paging selections. Push-buttons can route paging signal to any desired zone or combination of zones. However, the outputs of the DRC 4+4 and RCII are unbalanced. Therefore, two ADVANTAGE[®] DMD modules are connected at the outputs of the DRC 4+4 and RCII, providing the balanced line-level output necessary to feed an ADVANTAGE[®] D60EQ located in each zone. Each D60EQ provides the power, equalization, and autoformer for the distributed speaker system in that zone.

SPECIFICATIONS

Frequency Response (20Hz ~ 20kHz @ +4dBu):	+0/-0.1dB
Total Harmonic Distortion (20Hz ~ 20kHz @ +4dBu):	< 0.005%
Hum & Noise (20Hz ~ 20kHz):	< -100dBu
Input Impedance:	
In (balanced)	20k ohms
In/Out (unbalanced)	10k ohms
Patch (unbalanced)	interface dependent
Maximum Input Level:	
In (balanced)	+19dBu
In/Out (unbalanced)	+22dBu
Patch (unbalanced)	interface dependent
Output Impedance:	
Out (balanced)	200 ohms
In/Out (unbalanced)	150 ohms
Patch (unbalanced)	150 ohms
Maximum Output Level:	
Out (balanced)	+19dBu
In/Out (unbalanced)	+19dBu
Patch (unbalanced)	+19dBu
Output Gain:	
line-level (factory default)	unity gain
microphone-level (jumper option)	-60dB
Power Requirements:	±12 VDC @ 90mA max.
Power Consumption:	< 1.5 Watts
Dimensions:	
height (1 rack space)	1.75 inches (44mm)
width	19 inches (483mm)
depth	4.5 inches (115mm)
Weight:	3 lbs. (1.36kg)

BLOCK DIAGRAM



WARRANTY

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS MANUAL.

BIAMP Systems expressly warrants this product to be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase as a new product from an authorized BIAMP Systems dealer under the following conditions.

1. The Purchaser is responsible for completing and mailing to BIAMP Systems, within 10 days of purchase, the attached warranty application.
2. In the event the warranted BIAMP Systems product requires service during the warranty period, BIAMP Systems will repair or replace, at its option, defective materials, provided you have identified yourself as the original purchaser of the product to any authorized BIAMP Systems Service Center. Transportation and insurance charges to and from an authorized Service Center or the BIAMP Systems factory for warranted products or components thereof to obtain repairs shall be the responsibility of the purchaser.
3. This warranty will be VOIDED if the serial number has been removed or defaced; or if the product has been subjected to accidental damage, abuse, rental usage, alterations, or attempted repair by any person not authorized by BIAMP Systems to make repairs; or if the product has been installed contrary to BIAMP Systems's recommendations.
4. Electro-mechanical fans, electrolytic capacitors, and the normal wear and tear of appearance items such as paint, knobs, handles, and covers are not covered under this warranty.

5. BIAMP SYSTEMS SHALL NOT IN ANY EVENT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, LOSS OF USE, PROPERTY DAMAGE, INJURY TO GOODWILL, OR OTHER ECONOMIC LOSS OF ANY SORT. EXCEPT AS EXPRESSLY PROVIDED HEREIN, BIAMP SYSTEMS DISCLAIMS ALL OTHER LIABILITY TO PURCHASER OR ANY OTHER PERSONS ARISING OUT OF USE OR PERFORMANCE OF THE PRODUCT, INCLUDING LIABILITY FOR NEGLIGENCE OR STRICT LIABILITY IN TORT.

6. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. BIAMP SYSTEMS EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES SET FORTH HEREIN SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDIES WITH RESPECT TO ANY DEFECTIVE PRODUCT. THE AGENTS, EMPLOYEES, DISTRIBUTORS, AND DEALERS OF BIAMP SYSTEMS ARE NOT AUTHORIZED TO MODIFY THIS WARRANTY OR TO MAKE ADDITIONAL WARRANTIES BINDING ON BIAMP SYSTEMS. ACCORDINGLY, ADDITIONAL STATEMENTS SUCH AS DEALER ADVERTISEMENTS OR REPRESENTATIONS DO NOT CONSTITUTE WARRANTIES BY BIAMP SYSTEMS.

7. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

Thank you for purchasing BIAMP SYSTEMS...
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