ADVANTAGE® 801
Mic/Line Mixer

Operation Manual

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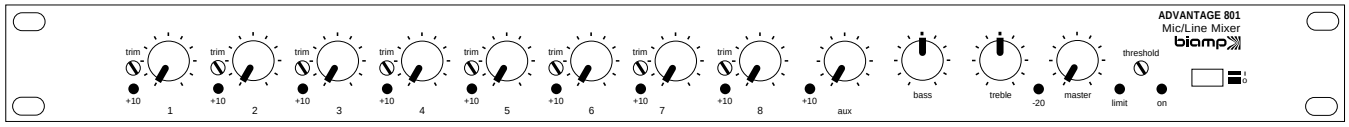
INTRODUCTION

The ADVANTAGE® **801** is a single rack-space mixer, with eight mic/line inputs and one auxiliary line input. Each mic/line channel uses a differentially balanced, discrete transistor preamplifier for low noise and low distortion performance. Special features, including a limiter and remote level control, make the **801** extremely versatile. The ADVANTAGE® **801** mixer is dependable, easy to install, simple to operate, and carries a five-year warranty.

801 features include:

- eight differential balanced mic/line inputs & one aux line input
- discrete transistor mic/line preamps for low noise & distortion
- optional mic/line input isolation transformers (user installed)
- +24 volt phantom power selectable on each mic/line input
- optional +48 volt phantom power supply (user installed)
- aux input switch selectable for balanced or stereo summing
- aux input 'auto-ducking' switch selectable on channels 1~8
- front panel trim and rear panel pad switch on each channel
- +10dB 'peak' LED indicator on each channel for easy set-up
- high-pass 'rumble' filter switch selectable on each channel
- mic/line & aux inputs on plug-in barrier strip connectors
- 1/4" patch insert jack on each channel and at main output
- balanced main output on plug-in barrier strip connector
- main output limiter with threshold control and LED indicator
- main out Bass & Treble control with rear panel bypass switch
- -20dB signal present & power LED indicators at main output
- channel 1 / priority override via rear panel switch terminals
- optional remote control of main out via external level control
- optional main output isolation transformer (user installed)
- stack in & slave switch to add inputs by linking multiple units
- DC Out jack for powering other SYSTEM ONE modules
- covered by Five Year "Gold Seal" Warranty
- CE marked and **UL** / **C-UL** listed power source

FRONT PANEL



+10 Indicator (Channels 1~8 & Aux): These red LEDs will light whenever channel signal levels reach +10dB (8dB below clipping). Use this feature to aid in adjusting the Trim controls (see below).

Trim (Channels 1~8): These screw-driver adjustable controls set the channel gain (0~60dB) to compensate for different input signal levels. For best performance, adjust these controls so the channel +10 indictors flash only on occasional peaks. If input signal exceeds the normal operating range of the Trim control, assign the rear panel Pad switch (see DIP switches on next page).

Level (Channels 1~8 & Aux): These controls adjust the amount of signal sent from the individual input channels to the mixer output section. Optimum Level settings are near the 12 o'clock position (unity gain).

Bass: This control provides low-frequency tonal adjustment (±10dB @ 100Hz) for signals at Main Patch & Main Output.

Treble: This control provides high-frequency tonal adjustment (±10dB @ 10kHz) for signals at Main Patch & Main Output.

-20 Indicator: This red LED will light whenever signal levels reach -20dB (signal present) at Main Output.

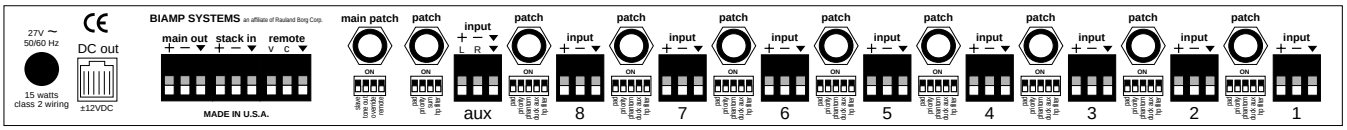
Master: This control adjusts the level of overall signal sent to Main Output. Optimum Master settings are near the 12 o'clock position (unity gain) or below.

Threshold: A limiter is provided at Main Output to help eliminate unwanted peaks in signal level. This screw-driver adjustable control sets the level at which the limiter will be activated. For most applications, set Threshold so the limiter is activated only by occasional peaks. Counter-clockwise adjustment lowers Threshold, increasing the amount of limiting. Clockwise adjustment raises Threshold, decreasing the amount of limiting. Threshold is factory set fully clockwise, effectively removing the limiter from operation.

Limit: This red LED will light whenever signal levels exceed the threshold, thereby activating the limiter.

On Indicator & Power Switch: When the Power switch is depressed, and power is applied, the red On indicator remains lit.

REAR PANEL



AC Power Cord: The power transformer provides 27 Volts AC to the mixer, and is detachable via a 5-pin DIN connector. The mixer has two internal 'self-resetting' fuses (there are no user serviceable parts inside the unit). If the internal fuses blow, they will attempt to re-set after a short period. However, this may be an indication that the mixer requires service.

DC Out: This 6-pin RJ11 modular jack supplies ±12 Volts DC (100mA max.) for powering certain ADVANTAGE® System One products, or other external devices (see product manuals for power considerations). Manual triggering of Channel 1 Override is also provided at the DC Out jack, by shorting pins 3 & 6 together using an external contact-closure (see Options on pg. 4). Channel 1 Override can be triggered automatically, by signal present in Channel 1, as well (see Master DIP switches below).

Main Output: This plug-in barrier strip provides the balanced line-level Main Output from the mixer. An output isolation transformer (model IT-B) is available as a user installed option (see Options on pg. 4). For balanced connection, wire high (+), low (-), and ground ( ). For unbalanced connection, wire high (+) and ground ( ), leaving (-) unconnected. Signal level will be reduced by 6dB when output is unbalanced. Main Output level is affected by the front panel Master control, as well as by remote control (see Remote below).

Stack In: This plug-in barrier strip provides the balanced line-level Stack In to the mixer. Signal entering here is combined with signals from the input channels, and is then sent to the Main Output section. When using multiple 801 mixers within a system, connect Main Output of one mixer to Stack In of the next mixer, and so forth. All mixers except the final 801 should be assigned as 'slaves' (see Master DIP Switches below). For balanced connection, wire high (+), low (-), and ground ( ). For unbalanced connection, wire high (+) and ground to both ( ) & (-).

Remote: This plug-in barrier strip provides connection for an optional remote master level control (model RP-L1) (see Options on pg. 4). An external potentiometer (5k~50k ohm linear taper) or external ramp voltage (0~+10VDC) can also be used. Potentiometers are wired high (V), wiper (C), and low ( ). Ramp voltage is wired positive (C), and ground ( ). The Remote port must be enabled before remote master level control is possible (see Master DIP switches below).

Main Patch: This 3-conductor TRS ¼" phone insert jack is for connection of certain ADVANTAGE® System One products or other external devices at the Main Output section. The Main Patch jack is pre-Master Level, and is wired Tip (send), Ring (return), and Sleeve (ground). ADVANTAGE® System One products require a single TRS ¼" phone cable for connection. Other devices may require a special 'Y' cable. If a pre-Master Level output is desired, connect to Main Patch with Tip & Ring (send) and Sleeve (ground).

Patch (Channels 1~8 & Aux): These 3-conductor TRS ¼" phone insert jacks are for connection of certain ADVANTAGE® System One products or other external devices to the individual input channels. Patch jacks are pre-Channel Level, and are wired Tip (send), Ring (return), and Sleeve (ground). ADVANTAGE® System One products require TRS ¼" phone cables for connection. Other devices may require special 'Y' cables. If a pre-Channel Level direct output is desired, connect to Patch with Tip & Ring (send) and Sleeve (ground).

Input (Channels 1~8 & Aux): These plug-in barrier strips provide the balanced mic/line Inputs to the mixer *(Channels 1~8 only)*. Input isolation transformers (model IT-A) are available as a user installed option (see Options on pg. 4). For balanced connection, wire high (+), low (-), and ground ( ). For unbalanced connection, wire high (+) and ground to both ( ) & (-). Phantom power (+24VDC) is available (see DIP Switches below), with +48V phantom power as an option (model 48VPS) (see Options on pg. 4). The Aux input accepts either balanced mono line input or unbalanced stereo line input (see DIP switches below). Aux input cannot accept mic input signal, or the optional input isolation transformer, and does not provide phantom power.

Master DIP Switches: These switches assign functions to the mixer as a whole (when pushed up). Slave assigns the mixer as an expander to a 'master' mixer. Tone Out bypasses the front panel tone controls (Bass & Treble). Override allows automatic muting of all other inputs when signal is present in Channel 1. Remote allows remote control of Main Output level, by enabling the Remote terminals (see above).

DIP Switches (Channels 1~8 & Aux): These switches assign functions to the individual inputs (when pushed up). Pad attenuates channel signal -18dB (-10dB at Aux) for line input. Priority disables Channel 1 Override muting for that channel. Phantom *(Channels 1~8 only)* turns on phantom power (for condenser mics). Duck Aux *(Channels 1~8 only)* allows channel signal presence to activate -15dB attenuation at Aux input (ducking). HP Filter enables a high-pass filter on the input (6dB/octave @ 170Hz). Sum *(Aux only)* converts Aux from standard balanced input to stereo (L/R) summing input.

OPTIONS

Override: Channel 1 Override can be manually triggered by an external switch wired across pins 3 & 6 of the DC Out jack (see diagram on next page). Channel 1 Override can also be triggered automatically by signal present in Channel 1 (see Master DIP Switches on pg. 3). When additional 801 mixers are being used (for more inputs), pins 3 & 6 of the various DC Out jacks can be wired together (in parallel). This allows Channel 1 Override triggering (manual or automatic) to be transmitted to all 801 mixers in the system. The additional 801 mixers should be assigned as 'slaves' (see Master DIP Switches on pg. 3), which allows all channels (except Channel 1 of the 'master' 801 mixer) to be muted. If necessary, specific channels of the system may then be excluded from Channel 1 Override muting, by assigning them as 'priority' channels (see DIP switches on pg. 3).

Remote: The output level of an 801 mixer can be remotely controlled via an external potentiometer (5k~50k ohm linear taper) or ramp control voltage (0~+10VDC). An RP-L1 remote control panel is available as an option (see diagram on next page). Potentiometers are wired high (V), wiper (C), and low ( ). Ramp voltage is wired positive (C) and ground( ). The Remote port of the 801 mixer must be enabled before remote control of output level is possible (see Master DIP Switches on pg. 3). Remote control does not change physical settings on the 801 mixer, it only attenuates from the maximum level settings established at the mixer.

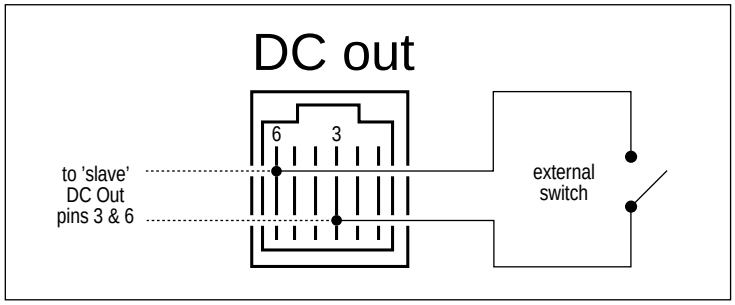
48 Volt Phantom Power: The 801 mixer provides +24 Volts DC phantom power for condenser microphones (see DIP Switches on pg. 3). Most modern electret condenser microphones can operate using a wide range of phantom power voltages (typically 9~52VDC). Only rare circumstances (such as older or specialized microphones) will require anything greater than the standard +24VDC phantom power. However, if these circumstances should arise, an optional +48 Volt DC phantom power supply is available (model 48VPS). To install the optional 48VPS: simply separate the AC power cord at the 'in-line' DIN connector near the 801 chassis. Insert the 48VPS 'in-line' with the power cord, mating the DIN connectors of the 48VPS to the appropriate gender DIN connectors from the 801 chassis & the wall-mount power transformer. No other modification is needed. Phantom power is automatically converted to +48 Volts DC when selected at inputs.

NOTE: *The 801 chassis must be disassembled before installing input/output transformers:* ***1)*** *remove top panel (2 screws at bottom of each side panel; 1 screw at top-center of front panel; 1 screw at top-center of rear panel).* ***2)*** *remove screws from front panel (2 screws at each end; 1 screw at bottom-center).* ***3)*** *remove screws from rear panel (2 screws near Main Out/Remote connectors).* ***4)*** *remove nuts & washers from rear panel (10 nuts & washers on Channel & Main Patch jacks).* ***5)*** *remove mounting screws from circuit board (9 screws in front of input connectors; 2 screws behind channel 3 Level & master Treble controls).* ***6)*** *gently pull circuit board forward (front panel comes forward; connectors exit rear panel).* ***7)*** *rotate front panel/circuit board upward, away from chassis (leave rear portion of circuit board in chassis, being careful not to strain power cord connections).*

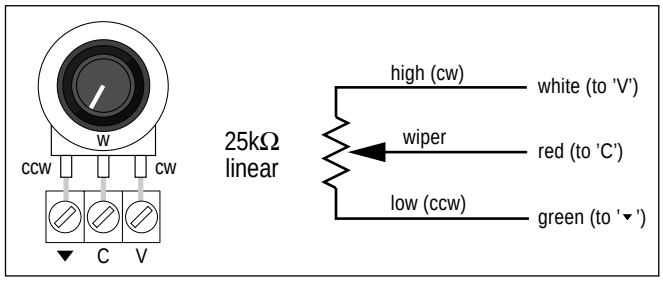
Input Transformers: To install input transformers (see diagram on next page): **1)** locate the transformer positions on the circuit board (circle area located in front of input connector & DIP switches on each channel). **2)** un-solder & remove the 2 capacitors located within each of the appropriate circle areas. **3)** install & solder an input transformer at each of the appropriate circle areas (transformer pin 1, designated by a red dot, must be inserted into the proper hole, designated by a square).

Output Transformer: To install output transformer (see diagram on next page): **1)** locate the transformer position on the circuit board (rectangle area located in front of Main Output connector). **2)** un-solder & remove the 2 capacitors located within the rectangle area. **3)** install & solder the output transformer at the rectangle area (transformer pin 1, designated by a red dot, must be inserted into the proper hole, designated by a square).

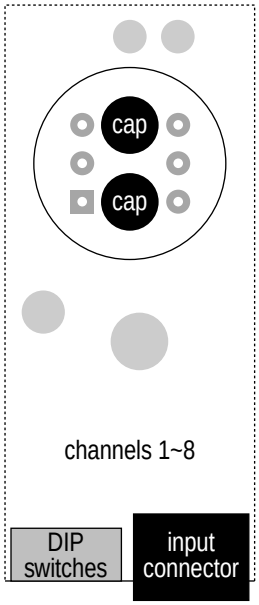
OVERRIDE



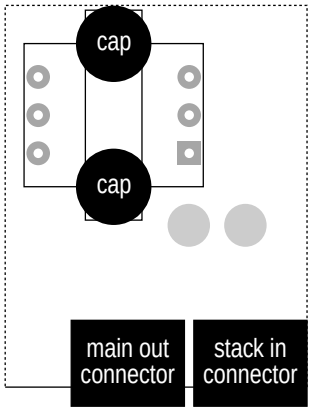
REMOTE



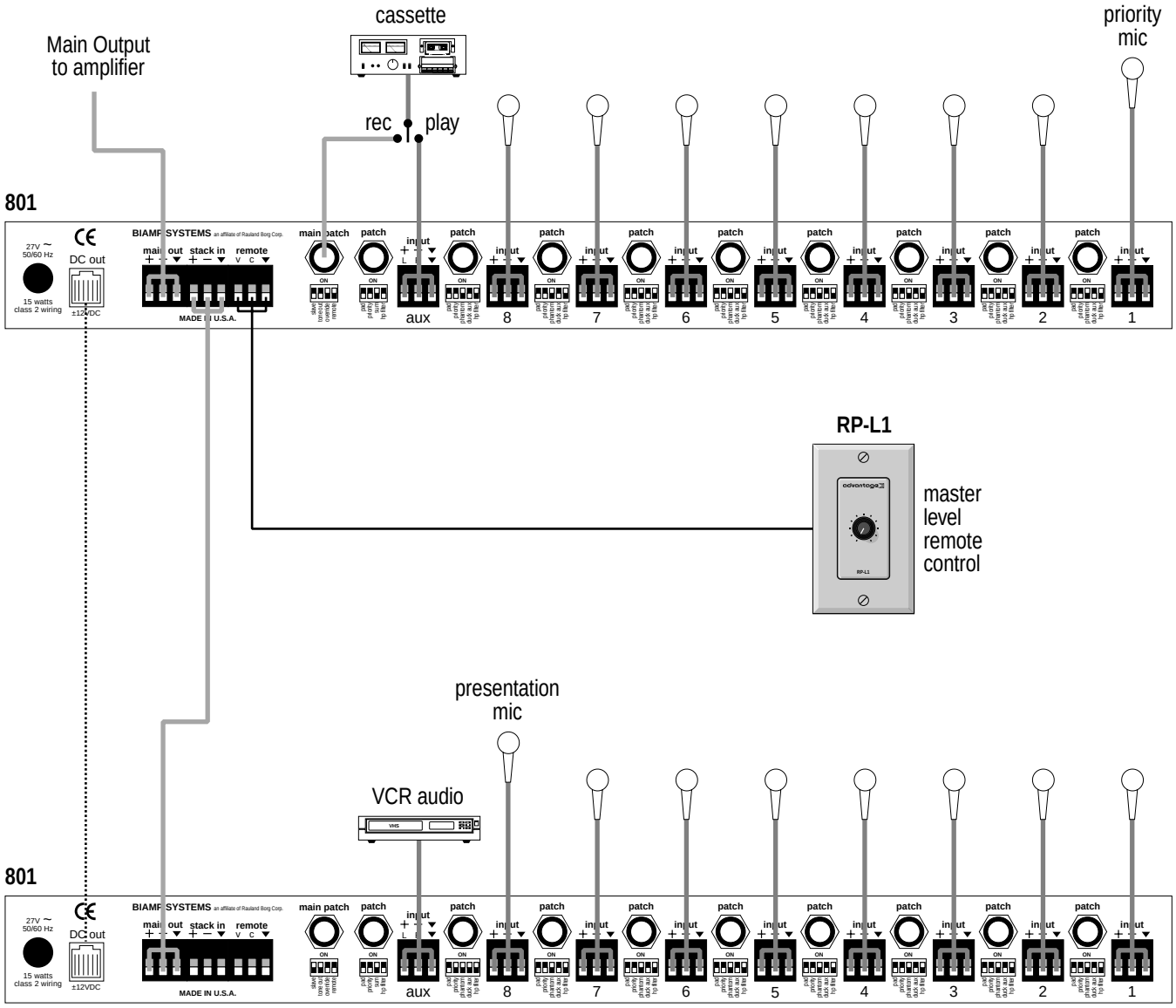
INPUT TRANSFORMERS



OUTPUT TRANSFORMER

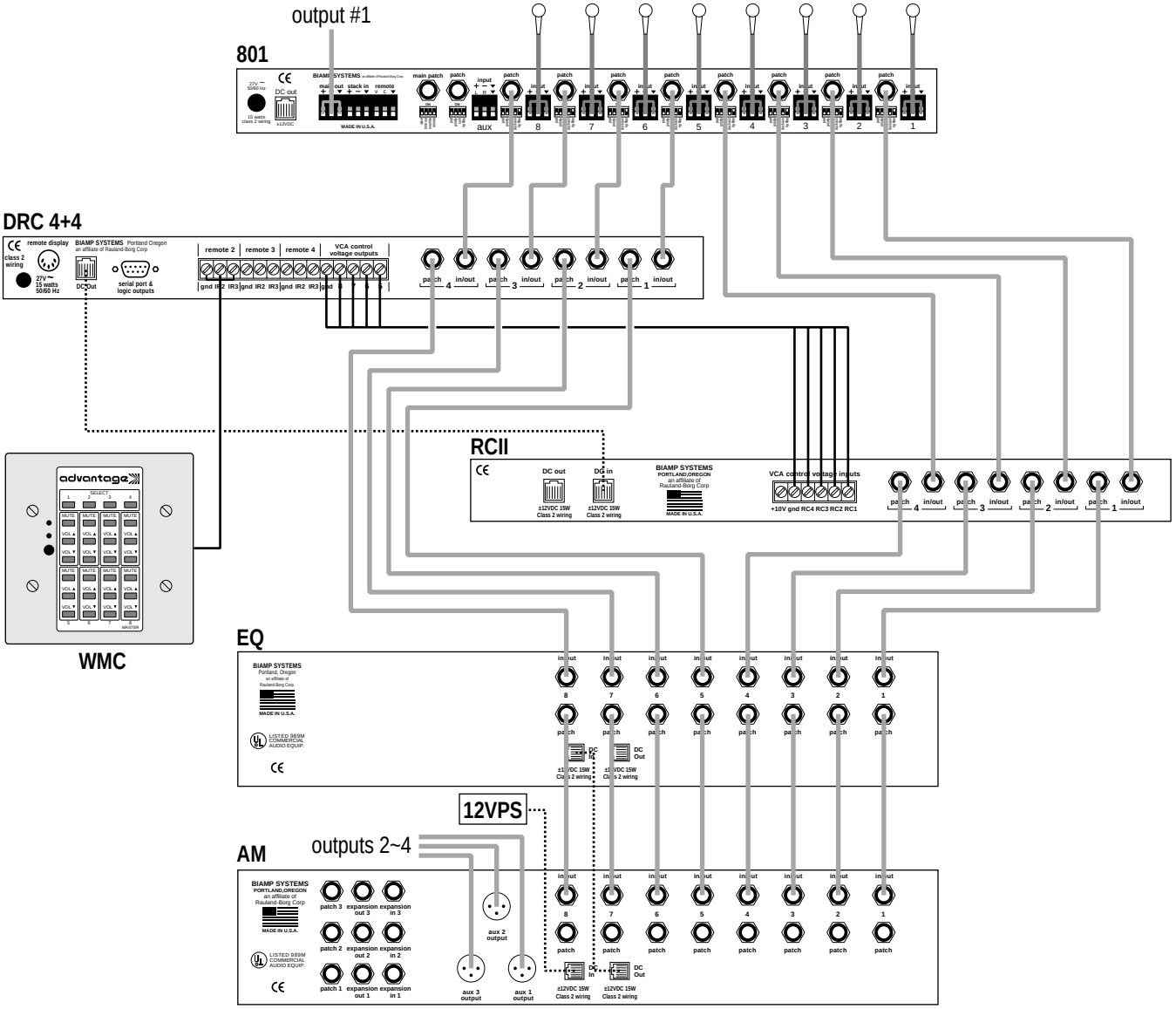


18-Input Mixer with Override, Ducking, Remote Level, & Recording



This application shows two *801* mixers being used together to create an eighteen input mixing system. Main Output of the bottom unit is connected to Stack In on the top unit, which then provides all channel signals at its Main Output. All mic inputs have phantom power (for condenser mics) and high-pass filter (for speech signals) assigned. Playback signal from cassette is connected to the Aux input on the top unit, which is set to sum the stereo signal. Record signal for cassette is derived (pre-Master level) from Main Patch, using a 3-conductor plug wired with Tip & Ring (signal) and Sleeve (ground). An external switch allows either playback or record, thereby preventing cassette feedback during recording. The top unit is set for remote, and an *RP-L1* is connected to the Remote port to control output level. The top unit is also set for override, which allows signal in Channel 1 to override the other inputs. Connecting DC Out (pins 3 & 6) from one unit to the other allows Channel 1 to override inputs on the bottom unit as well. The bottom unit is set for slave, which both defeats its output level control and allows Channel 1 of the top unit to override Channel 1 of the bottom unit. Tone Out is also assigned on the bottom unit, to avoid redundant controls. Playback signal from VCR is connected to the Aux input on the bottom unit, which is set to sum the stereo signal. Channel 8 on the bottom unit is set for priority & duck aux, which both prevents Channel 1 override of this input and allows signal in Channel 8 to cause ducking (attenuation) of the Aux input (VCR) signal.

8-Input / 4-Output Mixer with Channel EQ & Remote Channel Level



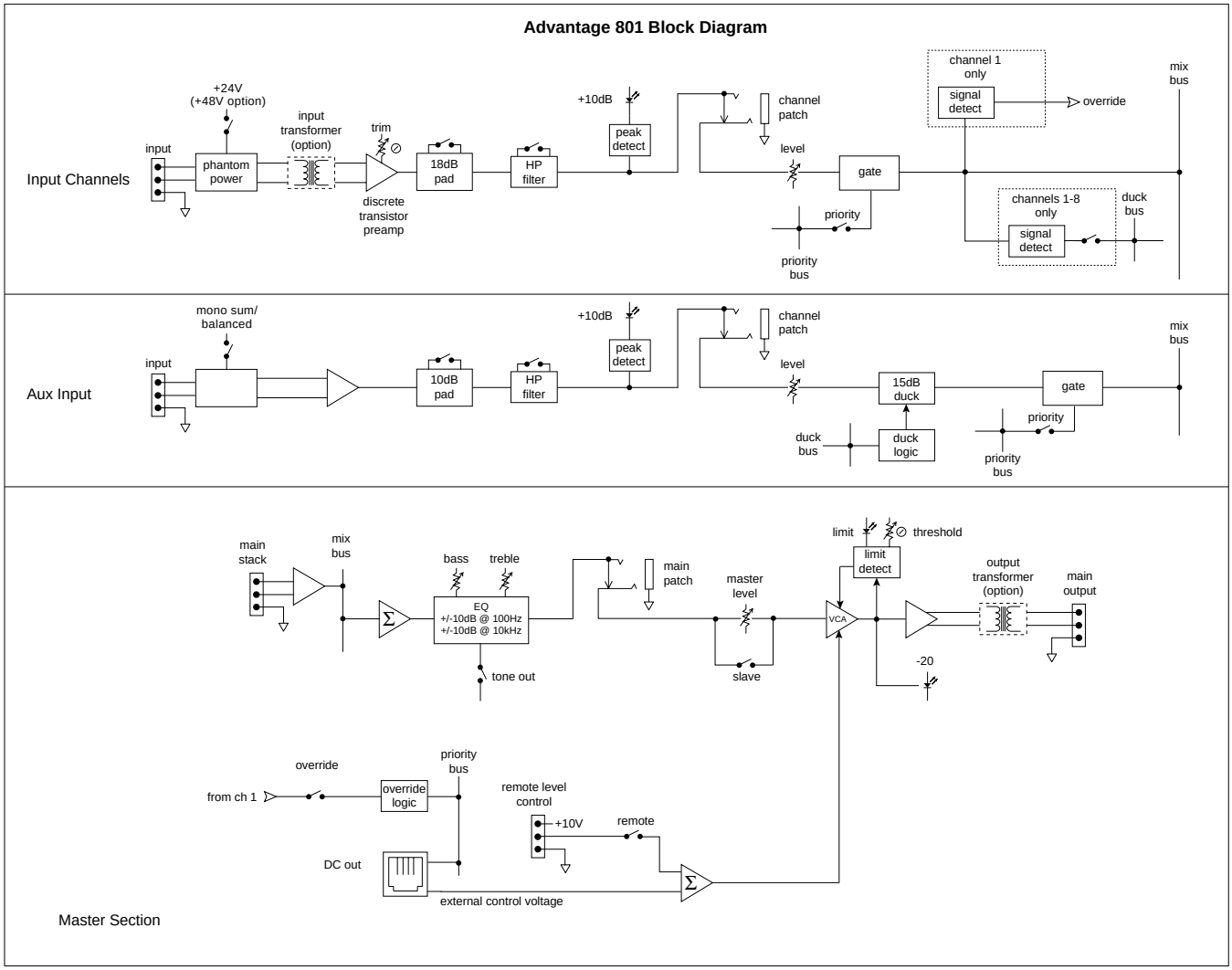
This application shows an *801* mixer connected with other *System One* products to provide a mixing system with remote channel control, channel equalization, and additional outputs. All *801* mic inputs have phantom power (for condenser mics) and high-pass filter (for speech signals) assigned. Remote is not assigned on the *801*, as control of channel levels is provided by a *DRC 4+4* and an *RCII*. The *DRC 4+4* Control Voltage Outputs are connected to the respective Control Voltage Inputs on the *RCII*, to provide common control of all eight channels. The *RCII* also receives power from the *DRC 4+4* DC Out jack. A *WMC* is wired to Remote 2 on the *DRC 4+4*, and provides volume & muting control for each of the eight channels, as well as selection of four global presets. The *EQ* provides 3-bands of equalization for each of the eight channels. Channel equalization is ±12dB of gain adjustment at three frequency bands (10kHz high shelf, 2kHz mid peak, 100Hz low shelf). The AM provides three balanced auxiliary mix outputs from the system. Each of the eight channels has three level controls, to adjust channel levels independently to the three outputs. Each output has a master output level control as well.. Power for the *EQ* & *AM* is provided by an outboard ±12 Volt power supply (model 12VPS). Signal connections between all of the products mentioned above are made from channel Patch jacks to respective channel In/Out jacks, using TRS ¼" phone cables, which are available in packages of four (model Patch Cables).

SPECIFICATIONS & BLOCK DIAGRAM

Frequency Response (20Hz-20kHz @ +4dBu):	+0/-1dB
THD + Noise (20Hz-20kHz @ +4dBu):	< 0.08%
Equivalent Input Noise (20Hz-20kHz, 150 ohm term.):	-123dBu
Output Noise (20Hz-20kHz):	
master level control down	< -86dBu
master level & one channel at nominal	< -78dBu
Maximum Gain:	
mic input to main output	85dB
channel patch to main output	25 dB
main patch to main output	16dB
main stack to main output	9dB
Crosstalk (channel-to-channel @ 1kHz):	-60dB
Output Tone Controls:	
Treble	+/-10dB @ 10kHz
Bass	+/-10dB @ 100Hz
Channel High-Pass Filters:	
frequency	-3dB @ 170Hz
slope	6dB/octave
Output Limiter:	
attack time	1~2 mS (program dependent)
release time	100~500 mS (program dependent)
threshold range	-4dBu ~ +24dBu

Output Impedance:	
main output (balanced)	200 ohms
channel patch (unbalanced)	100 ohms
main patch (unbalanced)	100 ohms
Maximum Output:	
channel patch & main patch	+18dBu
main output	+24dBu
Input Impedance:	
mic/line input (balanced)	5.1k ohms
channel patch (unbalanced)	> 7k ohms
main patch (unbalanced)	> 7k ohms
main stack (balanced)	40k ohms
Maximum Input:	
mic/line input	+20dBu
channel patch & main patch	+30dBu
main stack	+24dBu
Power Consumption (120/240VAC 50/60Hz):	< 15 watts
Dimensions:	
height (1 rack space)	1.75 inches (44mm)
width	19 inches (483mm)
depth	7 inches (178mm)
Weight:	6 lbs. (2.72kg)

Advantage 801 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.

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

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