

MIX1 INSTALLATION SHEET AND OPERATORS MANUAL



MIX1 General Description:

The MIX1 is a mixer/preamplifier that includes 6 channels that each include a microphone input at screw terminals and an aux input at an RCA jack. A seventh aux-only channel has a front panel switch to select one of two rear panel aux input jacks. A mute-select switch allows either for channel 1 (Mic input or Aux input) to mute all other channels, or for channels 1 through 6 to all mute the channel 7 aux-only input. The post-master-volume-control outputs include a balanced line level output at screw terminals, a balanced mic level output at screw terminals, and an unbalanced main output at an RCA jack. A pre-master-volume-control tape output is provided at an RCA jack. An RCA jack is also provided to link the mix bus of one MIX1 to another MIX1 so that all inputs appear at all outputs. A low cut filter switch is included which can reduce the bass response for use in reverberant spaces (like gymnasiums) and act as a horn protection filter (trumpet protect) when paging horns are being used.

Technical Specifications

AC Supply Voltage: 120VAC, 50/60Hz, Power Consumption: 5W

Input Channels 1-6: Microphone inputs - balanced screw terminals: 1mV(to reach 0dB 775mV output), 600Ω
 Aux inputs - unbalanced RCA connectors: 140mV(to reach 0dB 775mV output), 24kΩ
 Note: Mic and Aux input on same channel are internally mixed. Use one or the other – not both.
 The Mic inputs do not provide phantom power for condenser microphones. External phantom power supplies (sold by others) may be used to provide phantom power for the MIX1 mic inputs.

Input Channel 7: Aux inputs – Switchable on front panel - RCA jack “A” or RCA jack “B”.
 100mV(to reach 0dB 775mV output), 28kΩ

Mix Bus Link: RCA jack. 5mV, 1kΩ Use only to link the mix buses of up to a maximum of four (4) MIX1 mixers.

Outputs: Main Output - unbalanced RCA jack 775mV, 280Ω, Tape Output - unbalanced RCA jack 75mV, 280Ω
 Line Output - Balanced screw terminals 775mV, 600Ω, Mic Output - Balanced screw terminals 7mV, 50Ω

Frequency Response: 20Hz-20kHz ±1dB

Signal to Noise Ratio: Mic 60dB, Aux 65dB (from 0dB output level) Total Harmonic Distortion: ≤ .05%

Dimensions (inc. rubber feet): 19" wide x 1.80" high x 9.875"deep (483mm wide x 45.7mm high x 250.8mm deep)

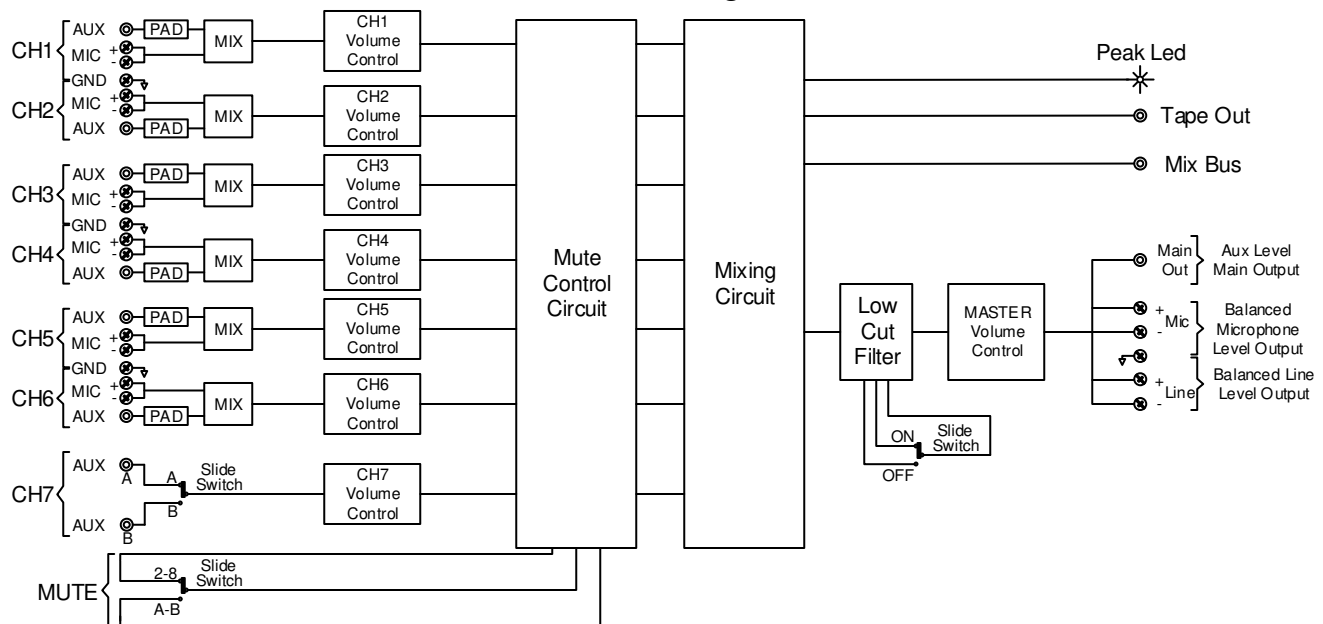
Weight: 7.0LBS. (3.18KGS) Shipping Weight: 12.35LBS. (5.60KGS) (Weights include rack ears) Color: Black

Optional Accessories (sold separately):

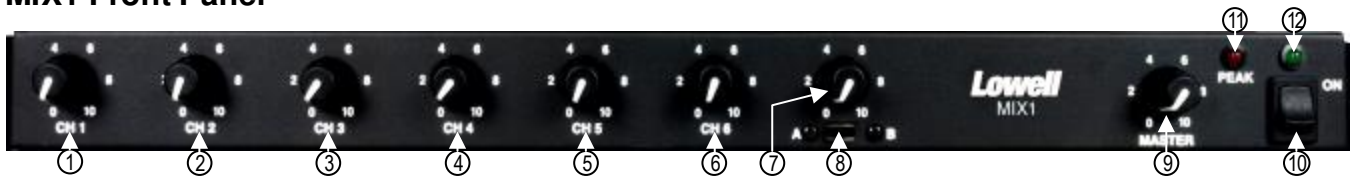
Lowell Manufacturing offers a full line of 19" equipment cabinets, wall mount shelves, rack mount AC power panels, AC power strips, and cooling fans that can be used to install the Lowell Amplifier products. See www.lowellmfg.com for product details.



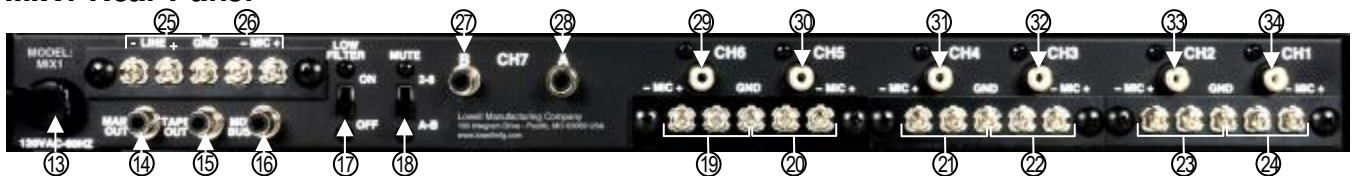
MIX1 Block Diagram



MIX1 Front Panel



MIX1 Rear Panel



- | | | |
|-------------------------|-----------------------------------|---|
| ① CH1 Volume Control | ⑬ Power Cord 120VAC | ⑳ Balanced 600Ω Line Output (screw terminals) |
| ② CH2 Volume Control | ⑭ Main Output RCA Jack | ㉑ Balanced 600Ω Mic Output (screw terminals) |
| ③ CH3 Volume Control | ⑮ Tape Output RCA Jack | ㉒ CH7-B Aux Input RCA Jack |
| ④ CH4 Volume Control | ⑯ Mix Bus Link RCA Jack | ㉓ CH7-A Aux Input RCA Jack |
| ⑤ CH5 Volume Control | ⑰ Low-Cut Filter On/Off Switch | ㉔ CH6 Aux Input RCA Jack |
| ⑥ CH6 Volume Control | ⑱ Mute Select Switch (2-8/A-B) | ㉕ CH5 Aux Input RCA Jack |
| ⑦ CH7 Volume Control | ⑲ CH6 Mic Input (screw terminals) | ㉖ CH4 Aux Input RCA Jack |
| ⑧ CH7 A/B Select Switch | ㉑ CH5 Mic Input (screw terminals) | ㉗ CH3 Aux Input RCA Jack |
| ⑨ Master Volume Control | ㉒ CH4 Mic Input (screw terminals) | ㉘ CH2 Aux Input RCA Jack |
| ⑩ Master Power Switch | ㉓ CH3 Mic Input (screw terminals) | ㉙ CH1 Aux Input RCA Jack |
| ⑪ Peak LED (Red) | ㉔ CH2 Mic Input (screw terminals) | |
| ⑫ Power On LED (Green) | ㉕ CH1 Mic Input (screw terminals) | |

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Instruction Sheet
IS-MIX1
Issued:6-1-14

Getting Started:

Please study carefully the "IMPORTANT SAFETY INSTRUCTIONS" that are given on page 8 before applying power to your MIX1 mixer/preamplifier.

INSPECTION

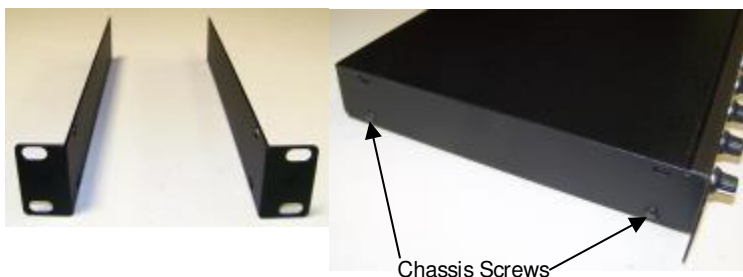
This unit was carefully checked and packed before leaving the factory. However, it is always a good idea to inspect the shipping container and unit for indications of improper handling. If the unit has been damaged, make an immediate claim to the dealer or distributor from whom it was purchased. If the unit was shipped to you, notify the transportation company without delay, saving all packing materials, in order to process the claim.

INITIAL PERFORMANCE CHECK

Before installing the MIX1, continue the inspection by running a quick performance check. Feed input signals to the mic or aux input channels and connect the main output to a test amplifier and speaker. **MAKE SURE THE UNIT IS GROUNDED BEFORE TESTING.** In this way you can check the basic operation of the MIX1 before actually installing the unit and making all of the final terminations required for the permanent installation. If shipping damage has resulted in the MIX1 being inoperable out of the box, call Lowell Customer Service to arrange for a replacement.

MOUNTING THE MIX1

The rubber feet on the MIX1 chassis allow it to be placed on a counter top or on a wooden or metal wall-mount shelf. Rack mounting ears have been included so the MIX1 can be mounted to any standard 19" equipment cabinet using standard 10-32 Phillips-head machine screws (like the Lowell model RS or RSP rack screws) with integral plastic washers to protect the finish of the front panel of the MIX1. Mount the rack mounting ears to the MIX1 using the two (2) chassis screws on each side of the unit as shown.



POWER WIRING

The MIX1 is equipped with a North American style NEMA 5-15P attached AC cord with a 3-prong grounded plug for a 120 VAC 50/60 power source. **WARNING: THE MIX1 MUST BE EARTH GROUNDED.**

GENERAL WIRING AND INSTALLATION GUIDELINES

DO NOT run microphone cables near AC power wires, data cables, telephone cables, or speaker wiring to avoid picking up extraneous signals in the sound system.

DO NOT run high impedance unbalanced wiring more than 20' to avoid picking up noise and affecting the frequency response of the sound system.

DO NOT run speaker output cables near data cables, telephone cables, or other low voltage wiring that could pick up the signal from the higher level speaker cables.

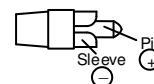
DO use shielded cable for all microphone and line level cables (except the balanced 600 ohm input line from a telephone system may be twisted pair cable).

DO make sure that all speakers are wired in phase with each other.

DO make sure there are no short circuits on the loudspeaker lines before connecting them to the amplifier output.

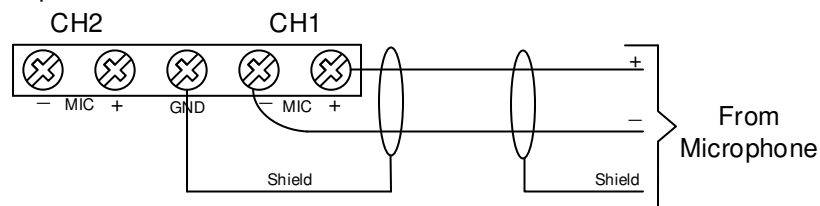
AUX INPUT CONNECTIONS

The MIX1 Aux inputs are standard high-impedance unbalanced RCA phono jacks. Aux input cables should be wired with the pin "hot" or "+" and with the sleeve "common" or "-".



MICROPHONE INPUT WIRING

Microphones may be connected to the three (3) screw terminals for the "MIC" input of channel 1 through channel 6. Note: the input channel chosen will depend on the muting scheme chosen. For example: If the microphone will have the highest priority and will mute all other channels, connect to the channel 1 "MIC" input and set the "MUTE" switch to "2-8". If the microphone will be a lower level priority and will be muted by an input fed to channel 1, choose the microphone input on channel 2-6.

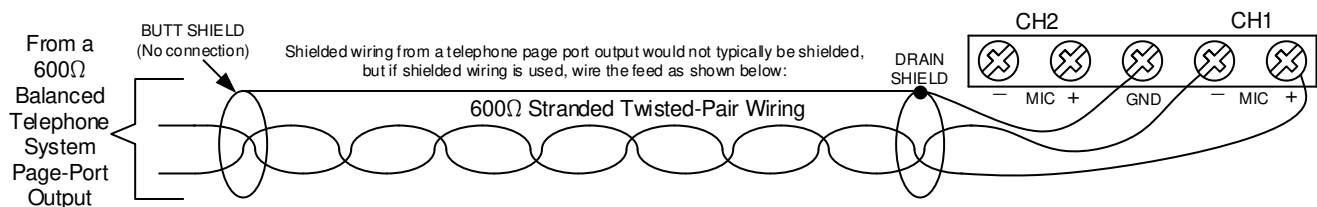


PHANTOM POWER

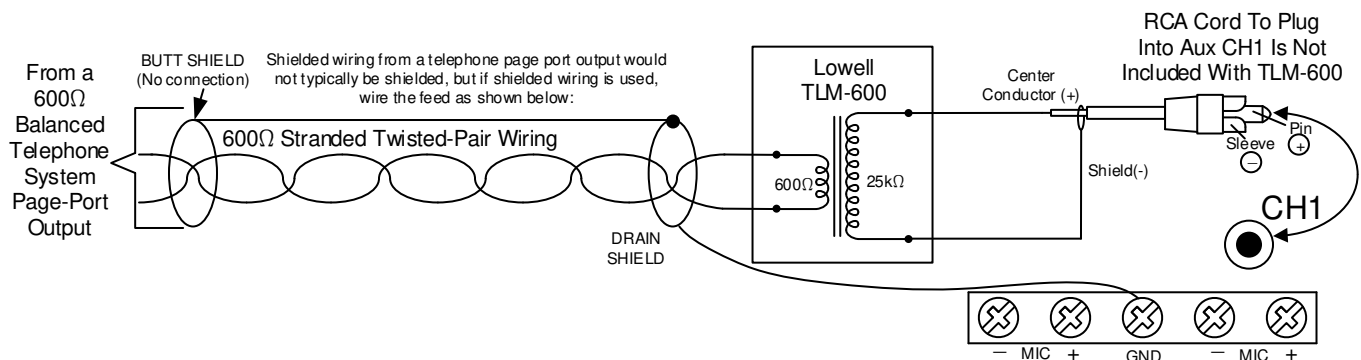
The microphone inputs on the MIX1 do not provide phantom power for condenser microphones. An external phantom power supply (sold by others) may be used to provide phantom power to a condenser microphone before feeding the signal to the MIX1 microphone input.

TELEPHONE INPUT WIRING

The page port output from a telephone system will be a 600Ω balanced line level output. If the telephone page port output can be reduced to a microphone level, it is possible to connect the telephone page feed to the channel 1 "MIC" input of the MIX1 (as shown below).

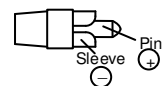


If the 600Ω balanced page port output is a line level output and is not adjustable, it is best to use the Lowell TLM-600 matching transformer (or any other 600Ω balanced to high impedance unbalanced telephone transformer adaptor) and feed the telephone page input to the channel 1 Aux input RCA jack (as shown below). Note: The MIX1 muting priority for channel 1 is still functional when using the Aux input RCA jack to feed the paging input to channel 1.



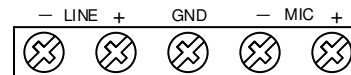
MAIN OUTPUT JACK CONNECTION

The MIX1 "MAIN" output connection is an RCA phono jack. The connecting output cable should be wired with the pin "hot" or "+" and with the sleeve "common" or "-". The main output jack is fed after the master volume control and low cut filter.



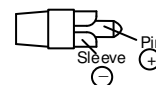
BALANCED MIC AND LINE OUTPUTS

The MIX1 balanced “MIC” level and “LINE” level outputs are available at screw terminals. These outputs are fed after the master volume control and low cut filter.



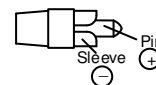
TAPE OUTPUT

The MIX1 “TAPE OUT” connection is an RCA phono jack. The connecting output cable should be wired with the pin “hot” or “+” and with the sleeve “common” or “-”. The tape output jack is available to feed a recording device and is not affected by the master volume control or the low cut filter.



MIX BUS LINK JACK

The MIX1 mix bus connection is an RCA phono jack. The connecting output cable should be wired with the pin “hot” or “+” and with the sleeve “common” or “-”. The mix bus jack is available to link up to a maximum of four (4) MIX1 mixer/preamplifiers and is not affected by the master volume control or the low cut filter. When MIX1 units are linked by connecting the mix buses, all inputs appear at the outputs of all units. Note: The muting functions are only local to one mixer.



LOW CUT FILTER SWITCH

When the MIX1 “LOW FILTER” switch is in the “ON” position, the low frequency content is rolled off in the “MAIN OUT” output, “MIC” balanced output, and “LINE” balanced output. This is particularly useful in a case where microphones are exhibiting bass frequency “boominess”, or for an application in a reverberant space (such as a gymnasium) when low frequencies reduce speech articulation. We recommend that the low cut filter always be engaged to act as horn protection (trumpet protection) when the sound system is feeding paging horns.

PEAK LED (RED)

The red “PEAK” LED located on the front panel flashes when the peaks are approaching full output. Occasional flashing of the “PEAK” led is acceptable. A steady bright red glow could indicate that the MIX1 mixer/preamplifier is being over-driven, or there is sub-sonic or ultra-sonic oscillation in the system and these conditions should be corrected.

MUTING-PRIORITY SCHEME

The MIX1 mixer/preamplifier includes a unique voice-activated (VOX) ducking/muting circuitry. When a page is made, other inputs (such as a music input) that are set up at a lower muting level, softly lower in volume during the page. If the volume of the page is not strong, the music will only duck in volume (not be completely muted). If the incoming page is strong in level, the music volume will be completely muted. When the page has been completed, the volume of the music will return to its normal level. The MIX1 has two muting schemes that may be selected at the “MUTE” switch on the rear of the unit. With the “MUTE” switch is in the “2-8” position, an input to either the channel 1 mic screw terminals or the channel 1 aux input, will mute all other channels mic and aux inputs. With the “MUTE” switch in the “A-B” position, an input to any of the channel 1-6 mic screw terminals or aux inputs, will mute the channel 7 aux input (from either the channel 7 “A” or “B” RCA input jack).

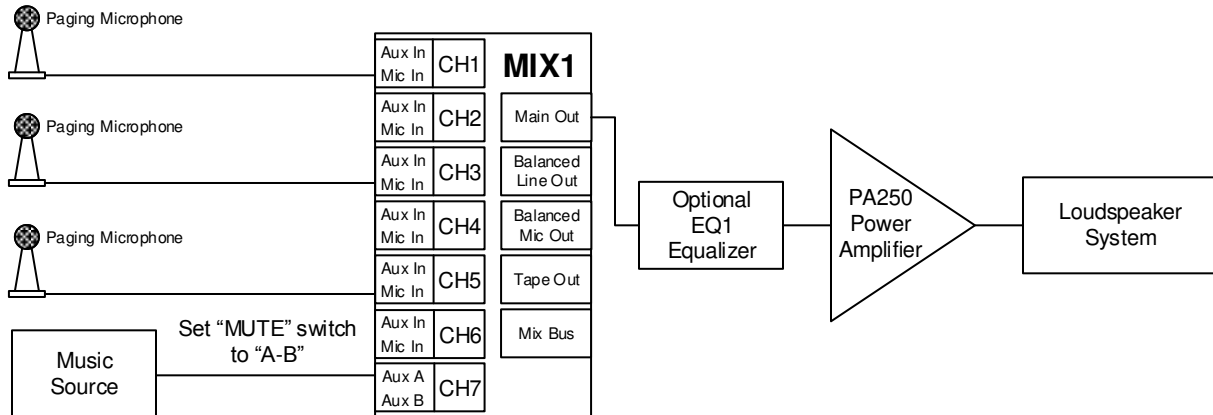
OPERATING INSTRUCTIONS

Setting the controls on the MIX1 is dependent on the particular application and system design, but there are some basic guidelines that should be followed to maximize the performance of the mixer/preamplifier:

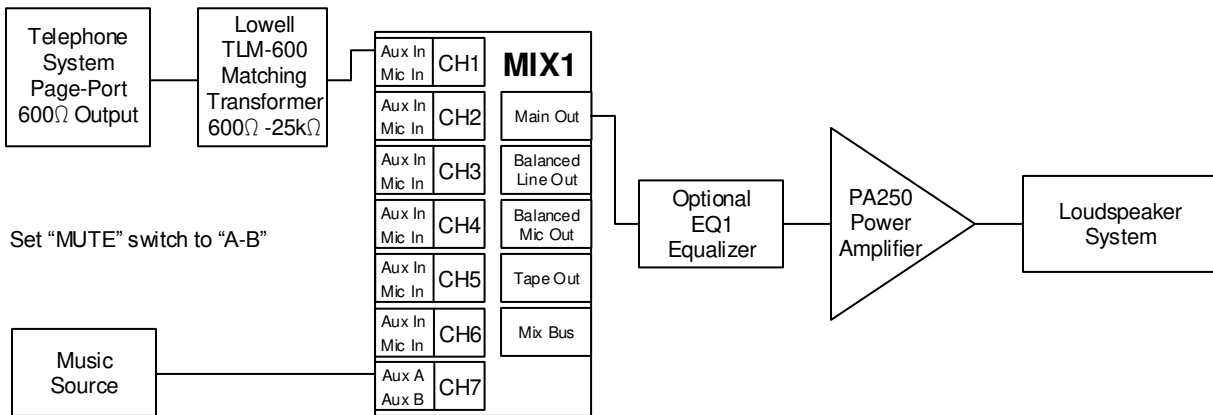
- 1) Set your power amplifier's level control all the way down (fully counter-clockwise).
- 2) Set the “MASTER” volume control on the MIX1 to about 70% (about 2 o'clock).
- 3) Choose the most important input (for example the paging microphone) and turn up that input control while talking into the microphone until the peak light starts to flash. Then turn down that control to where in normal use the peak light no longer flashes.
- 4) Turn up your power amplifier's level control to the desired system volume.
- 5) Finally turn up the rest of the input controls on the MIX1 to the desired level to balance with the input that was set in Step 3 (making sure that the peak light rarely flashes).

TYPICAL SYSTEM CONFIGURATIONS

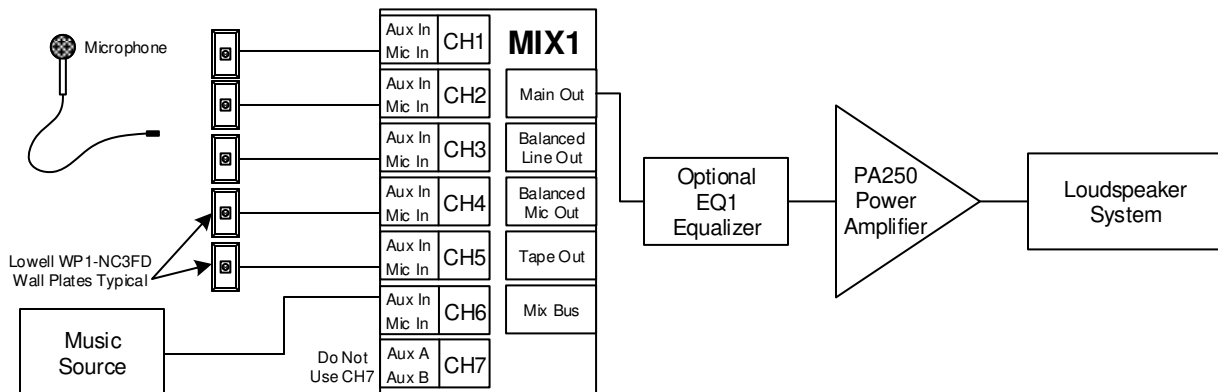
Basic Paging System with One or More Paging Microphones



Basic Paging System with Telephone Paging

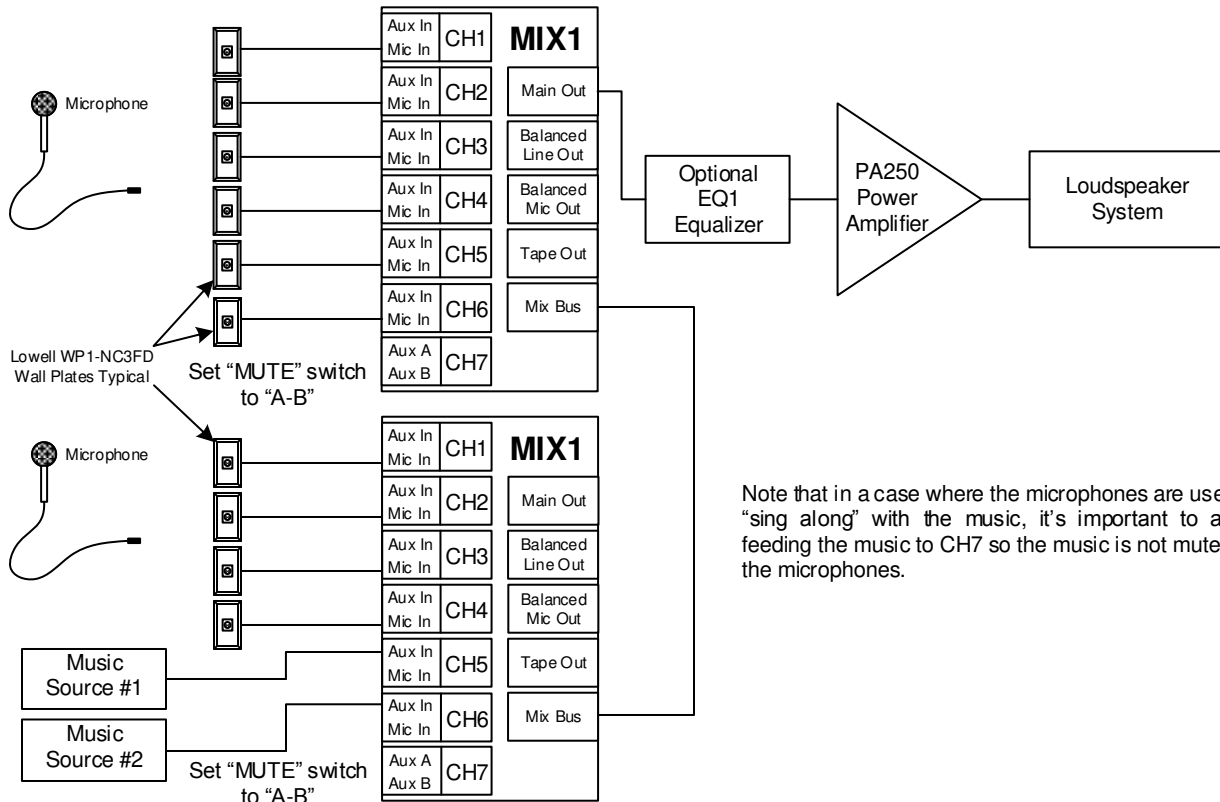


Basic Sound System with 5 Mic Jacks and Music Source

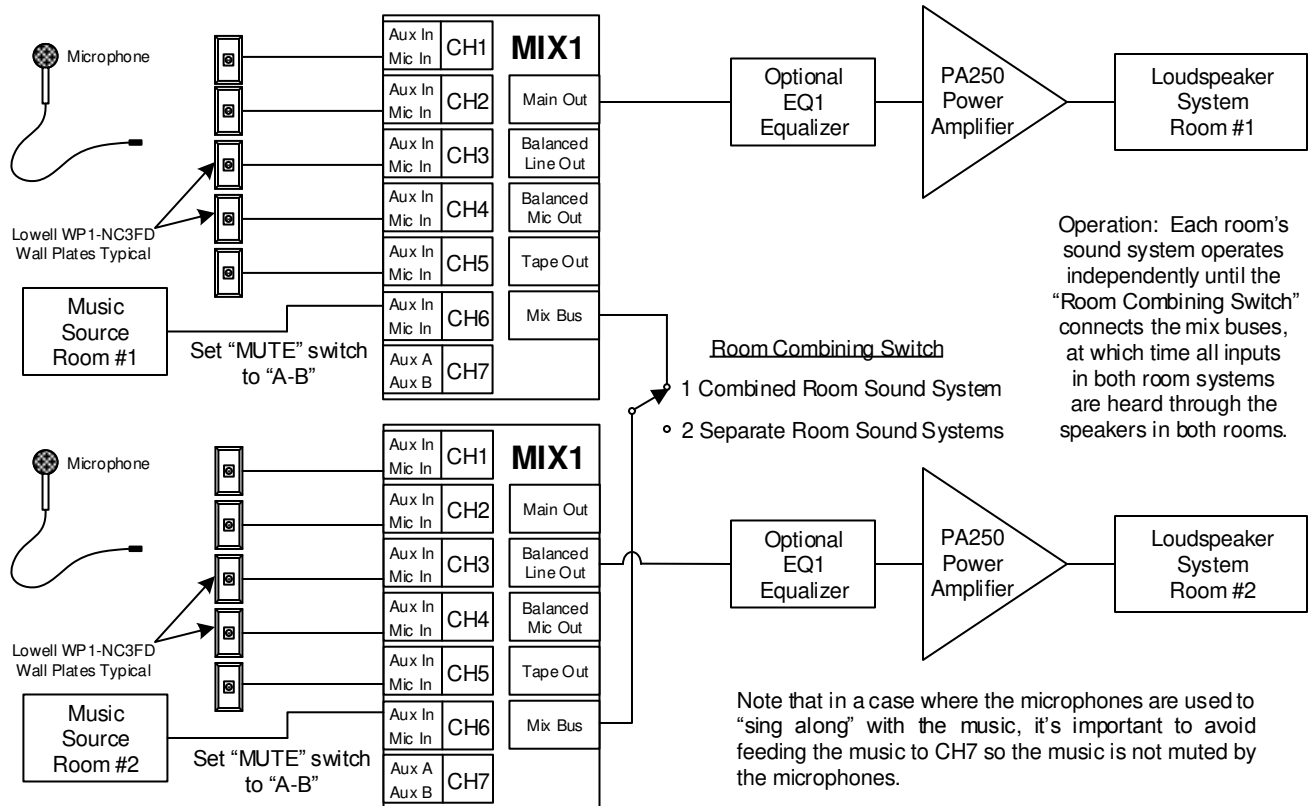


Set "MUTE" switch to "A-B". Note that in a case where the microphones are used to "sing along" with the music, it's important to avoid feeding the music to CH7 so the music is not muted by the microphones.

Basic Sound System with 10 Mic Jacks and 2 Music Source



Basic Room-Combining System



IMPORTANT SAFETY INSTRUCTIONS



- Read these instructions. □ Keep these instructions. □ Heed all warnings.
- Follow all instructions. □ Do not use this apparatus near water.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with manufacturer's instructions.
- Do not install near any heat sources such as radiators, registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord and plug from being walked on or pinched particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.
- Only use attachments and accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- The plug on the power cord is the AC mains disconnect device and must remain readily operable. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
- This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- When permanently connected, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.
- If rack mounting, provide adequate ventilation. Equipment may be located above or below this apparatus, but some equipment (like large power amplifiers) may cause an unacceptable amount of hum or may generate too much heat and degrade the performance of this apparatus.
- This apparatus may be installed in an industry standard equipment rack. Use screws through all mounting holes to provide the best support.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. This product may contain chemicals known to the State of California to cause cancer, or birth defects or other reproductive harm.

NOTE: This equipment may generate, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by Lowell Manufacturing will void the manufacturers warranty.

WARNING



To reduce the risk of electrical shock, do not open the unit. No user serviceable parts inside. Refer servicing to qualified service personnel.

The symbols shown below are internationally accepted symbols that warn of potential hazards with electrical products.



This symbol indicates that a dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

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