

VMA160

VMA1120

VMA1240

VMA260

VMA2120

Commercial Series 1 Channel & 2 Channel Mixer-Amplifier Operation Manual



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This manual does not include all of the details of design, production, or variation of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance.

The information provided in this manual was deemed accurate as of the publication date. However, updates to this information may have occurred.

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IMPORTANT SAFETY INFORMATION



AVERTISSEMENT: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

WARNING: TO THE REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE

Thesymbolshownaboveareinternationallyacceptedsymbols thatwarnofpotentialhazardswithelectricalproducts.Thelightningflashwitharrowpointinanequilateraltrianglemeans that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

Thesymbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

SAFETY INSTRUCTIONS

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE SHALL BE CONNECTED TO A MAINS SOCKET OUTLET WITH A PROTECTIVE EARTHING CONNECTION.

The cores in the mains lead are colored in accordance with the following code:

GREEN and YELLOW - Earth BLUE - Neutral BROWN - Live

As colors of the cores in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

- The core which is colored green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or colored green, or green and yellow.
- The core which is colored blue must be connected to the terminal marked N or colored black.
- The core which is colored brown must be connected to the terminal marked L or colored red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the units chassis.

CONDUCTOR		WIRE COLOR	
		Normal	Alt
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YEL	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

WARNING FOR YOUR PROTECTION READ THESE INSTRUCTIONS:

KEEP THESE INSTRUCTIONS

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING LIQUID AND NO OBJECT FILLED WITH LIQUID, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS

CLEAN ONLY WITH A DRY CLOTH.

DO NOT BLOCK ANY OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.

ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.

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 the third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only with the cart stand, tripod bracket, or tables specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. 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.



POWER ON/OFF SWITCH: For products provided with a power switch, the power switch DOES NOT break the connection from the mains.

MAINS DISCONNECT: The plug shall remain readily operable. For rack-mount installation where the plug is not accessible, a all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building.

FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only.

MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent.

If connected to 240V supply, as suitable CSA/UL certified power cord shall be used for this supply.

IMPORTANT SAFETY INFORMATION

ELECTROMAGNETIC COMPATIBILITY

This device complies with part 15 of the FCC Rules and the Product specifications noted on the Declaration of Conformity. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Operation of this unit within significant electromagnetic fields should be avoided.

- Use only shielded interconnecting cables.



EU - DECLARATION OF CONFORMITY

Manufacturer:
Harman International
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Northridge, CA 91329 USA
Phone +1.818.893.8411

European Representative:
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Brand: JBL
Equipment Type: 1 Channel & 2 Channel Mixer-Amplifier
Family name: VMASeries
Model names: VMA160. VMA1120. VMA1240. VMA260. VMA2120

We, Harman International, declare under our sole responsibility that the product, to which this declaration relates, is in conformity with the relevant Union harmonizes legislation:

The following harmonized standards and technical specifications have been applied:

[illegible]

Copies of all technical documents can be obtained by contacting Curtis Thornburg: Curtis.Thornburg@Harman.com

May 31, 2019
Nanshan, Shenzhen, China

(Date and place of Issue)

Robert McKean
Director, Test & Validation,
Engineering/R&D SDC

(Name, Signature and function of authroirized person)

SUPPLIER DECLARATION OF CONFORMITY (SDoC)

Company: Harman Professional

Address: 2000 Derry Street, Cincinnati, OH 45202

Telephone: 513-222-0193

Product Name:

I, the undersigned, **Mr. Harman International**, declare that the SDoC is issued under our sole responsibility and belongs to the following product: **Two Channel Stereo Amplifier**

Object of the declaration:

The VMA Series of Mini Amplifiers are professional level, rack and bench mounted, two channel stereo amplifiers with independent level controls and two stereo channels with linear or light output characteristics. They provide maximum gain/efficiency for each input channel and are designed with a variety of input and output options. They are 160W output.

The object of the declaration described above is in conformity with the relevant standards of the standards.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference. And (2) this device must accept any interference that may cause undesirable operation.

May 31, 2019
Nanshan, Shenzhen, China

(Date and place of Issue)

Robert McKean
Director, Test & Validation,
Engineering/R&D SDC

(Name, Signature and function of authorized person)

1.0 Welcome

The JBL® VMA Series of Mixer-Amplifiers are professional tools designed and built for installed sound applications. There are both single channel and two channel models with five or eight mixer channels, respectively. They provide mixer capability with independent level control for each input channel and amplification with a choice of low impedance, 70V or 100V outputs.

The product includes a rack mounting kit for installations to a cabinet. The system can be easily expanded with additional JBL Commercial Series Amplifiers and Commercial Series Mixers. Provisions are included for remote volume control using the JBL CSR-V control module.

1.1 Features

- 5 or 8 inputs with 1 or 2 outputs, respectively
- Ideal for commercial and industrial use
- System may be expanded by adding JBL Commercial Series Mixers or **Commercial Series Amplifiers**.
- Euroblock, RCA and TRS type input connectors available.
- Independent Bass and Treble controls for each output channel
- VOX ducking during announcements
- Remote volume control capability using JBL CSR-V module and CAT5 cable with RJ45 connectors
- Priority muting using PTT switch closure
- **Configurable output routing**
- Barrier block output connections to drive 8 Ohm, 70V or 100V speaker systems.
- 3 Year Warranty
- Media Player capable of playing MP3 files from Bluetooth or USB drive.

*Warranty is only valid within the United States of America. For information on warranty outside of the U.S.A., please contact your local distributor.

1.2 Front Panel Controls & Indicators

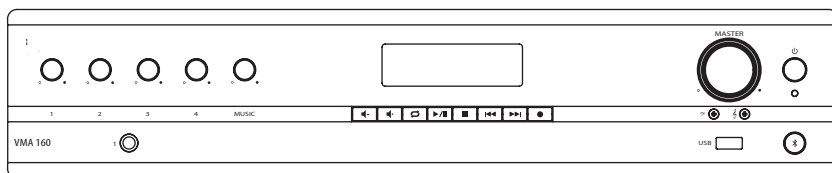


Figure 1.2.1 Front Panel, 1 Channel Model

1.3 Rear Panel Controls & Connectors (VMA160, VMA1120, VMA1240)

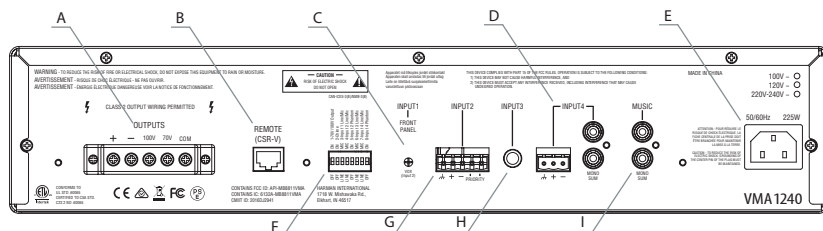


Figure 1.3.1 Rear Panel - VMA 1240

- A. Amplifier output connectors.
- B. Remote volume connectors – RJ-45 style connector to connect to JBL CSR-V control module.
- C. VOX sensitivity adjustment for Input 1.
- D. Input 4 may use either Euroblock or RCA style connector.
- E. AC Power Inlet – Detachable IEC.
- F. Configuration switches control mic/line gain settings and phantom power for the inputs as well as enable the chime and 70V/100V output mode.
- G. Input 2 – Euroblock connector provides for audio input and priority contacts that will duck other channels during an announcement when contacts closed using a switch.
- H. Input 3 accepts a 1/4" TRS connector.
- I. Music input uses a Dual RCA Connector. Stereo, unbalanced sources will be summed together.

2.0 Setup

Please unpack and inspect your amplifier for any damage that may have occurred during transit. If damage is found, notify the transportation company immediately. Only you can initiate a claim for shipping damage. We will be happy to help as needed. Save the shipping carton as evidence of damage for the shipper's inspection.

We also recommend that you save all packing materials so you will have them if you ever need to transport the unit. Never ship the unit without the factory pack.

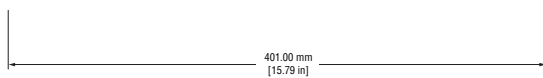
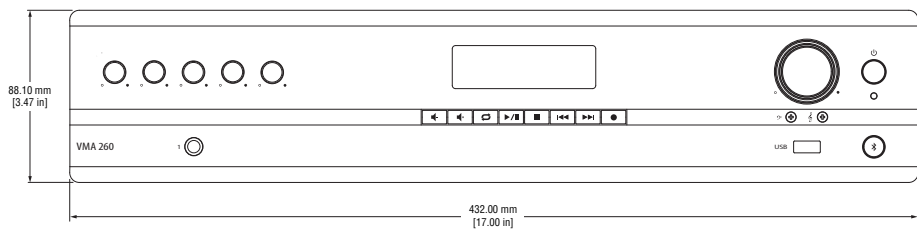
WARNING: Before you start to set up your amplifier, make sure you read and observe the Important Safety Instructions found at the beginning of this manual.

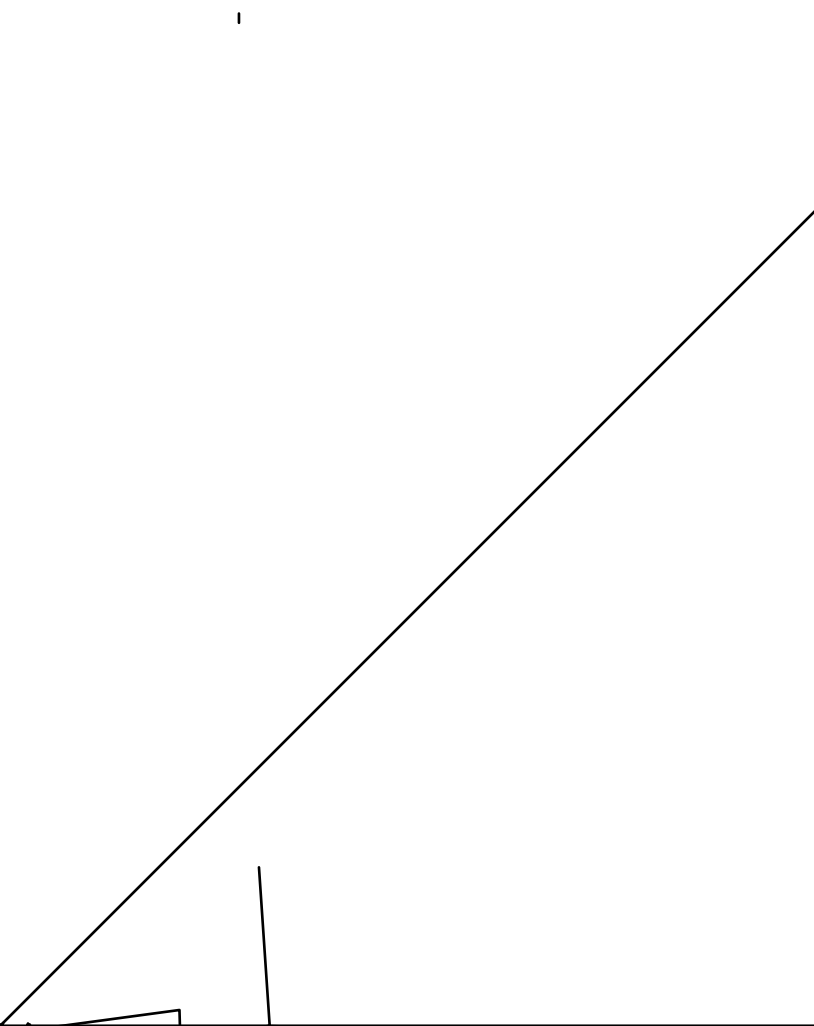
CAUTION: Before you begin, make sure your amplifier is disconnected from the power source and all level controls turned completely down (counterclockwise).

Note: We recommend that any sensitive equipment be located at least 8 inches (20 cm) away from the amplifier.

To install the amplifier, you can use one of the following approaches:

- Rack mount the amplifier with the rack mounting kit, see Figure 2.2.2.
- Place a single amplifier on a surface with 12 inches of air space around the unit for convection cooling. Rubber feet are included and can be attached onto the underside of the chassis. For amplifier dimensions, see Figure 2.2.1.





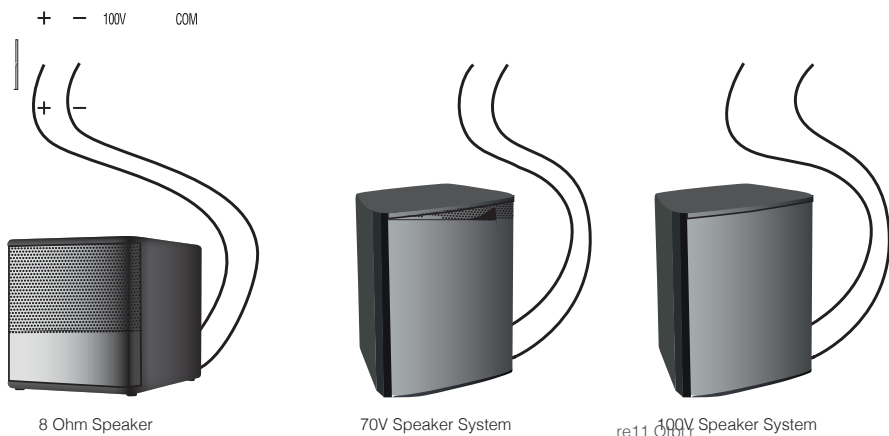
2.5 Output Wiring & Connectors

To drive distributed speaker systems designed to operate at 70V or 100V, connect to the corresponding output terminals.

JBL recommends using pre-built or professionally wired, high-quality, two-conductor, heavy gauge speaker wire. Speaker wires should be twisted cable, if possible. To prevent the possibility of short-circuits, the wires should be stripped back no greater than 6 mm (1/4 inch), see Figure 2.5.1.

Suggested below are guidelines to select the appropriate size of wire based on the distance from amplifier to speaker. Check with local code as this may vary.

Distance	Wire Size
Up to 25 ft. (7.6m)	16AWG
26-40 ft. (7.9-12.2m)	14AWG



2.7 Connecting to AC Mains

Connect your amplifier to the AC mains power source (power outlet) with the supplied AC power cord. First, connect the IEC end of the cord set to the IEC connector on the amplifier; then, plug the other end of the cord set to the AC mains. When properly connected to a live power source, the power LED should illuminate blue.

WARNING: *The third prong of this connector (ground) is an important safety feature. Do not attempt to disable this ground connection by using an adapter or other methods.*

Amplifiers don't create energy. The AC mains voltage and current must be sufficient to deliver the power you expect. You must operate your amplifier from an AC mains power source with not more than a 10% variation above or below the specified line voltage and within the specified frequency range indicated on the back panel of the amplifier. If you are unsure of the output voltage of your AC mains, please consult your electrician.

2.8 Protecting Your Speakers

It's wise to avoid clipping the amplifier signal. Not only does clipping sound bad, but it can damage high-frequency drivers. The built-in clip limiter prevents clipping.

Also, avoid sending strong subsonic signals to the amplifier. High-level, low-frequency signals from breath pops or dropped microphones can blow out drivers. You can switch to the HI-Z mode which, in addition to switching in the output transformers for 70V and 100V speakers, activates the high-pass filter. The filter prevents potentially damaging subsonic signals from going to the amplifier by eliminating signals below 70Hz.

2.9 Startup Procedure

Use the following procedure when first turning on your amplifier:

1. Turn down the level of your audio source.
2. Turn down the level controls of the amplifier.
3. Power up the amplifier. The blue Power LED should be ON.
4. Turn up the level of your audio source to an optimum level.
5. Turn up the Level controls on the amplifier until the desired loudness or power level is achieved.

If you ever need to make any wiring or installation changes, don't forget to disconnect the power cord.

3.0 Operation

3.1 Precautions

Your amplifier is protected from internal and external faults, but you should still take the following precautions for optimum performance and safety:

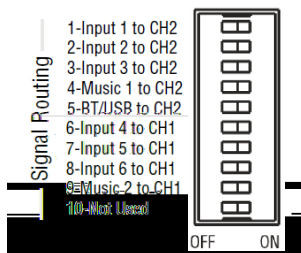
1. Before use, your amplifier first must be configured for proper operation, including input and output wiring hookup. Improper wiring can result in serious operating difficulties.

For information on wiring and configuration, please consult the Setup section of this manual.

2. Use care when making connections, selecting signal sources and controlling the output level.
3. Always be sure to have all levels at minimum when connecting or disconnecting audio sources from the inputs, especially when MIC is selected from the MIC/ LINE switch. Failure to do so may cause the amplifier or speaker to go into a protection mode or even cause damage.
4. **WARNING:** Never connect the output to a power supply, battery or power main. Electrical shock may result.
5. Tampering with the circuitry, or making unauthorized circuit changes may be hazardous and invalidates all agency listings.
6. Do not operate the amplifier with the red Clip LEDs constantly flashing.
7. Do not overdrive the mixer, which will cause clipped signal to be sent to the amplifier. Such signals will be reproduced with extreme accuracy, and loudspeaker damage may result.
8. Do not operate the amplifier with less than the rated load impedance. Due to the amplifier's output protection, such a configuration may result in premature clipping and speaker damage.
9. Use the amplifier in a well-ventilated environment and do not use it in ambient temperature conditions in excess of 40°C. Failure to do so will result in the automatic disconnection from the power supply as the overheat auto protection function will be activated and there will not be any audio signal coming out of the amplifier. In this case, turn down the volume to the minimum, and the amplifier will soon resume working. When the amplifier returns to normal temperature you may turn the volume up to a safe level.
10. If the line voltage to the amplifier is too low, the low voltage protection function will be activated.

CAUTION: JBL is not liable for damage that results from overdriving other system components.

3.2 Input Routing



The two-channel models, VMA260 and VMA2120, include a default routing of Input channels 1-3, Music 1 and the Bluetooth/USB source to amplifier 1. Input channels 4-6 and Music 2 are routed to amplifier 2. The user may take any input and have it routed to both outputs by selecting the appropriate switch. For example, if you set switch 1 to ON, Input 1 will be routed to both AMP1 and AMP2.

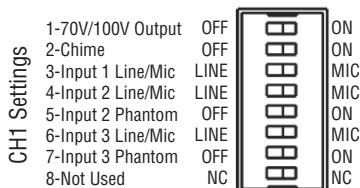
A DIP switch is available for each output channel to configure the unit to your specific system.

3.3.1 70V/100V Output Selection

When this switch is in the “OFF” position, the amplifier is configured to drive low impedance speakers, (4 Ohms ,minimum) The 70V/100V switch will activate the built-in output transformer allowing the unit to directly drive 70V or 100V speaker systems when connected to the appropriate output terminals. As an added feature when driving the high impedance speakers, the system automatically apply a 70Hz high pass filter.

3.3.2 Chime Function

Turning chime ON will enable a chime sound at the onset of an announcement when priority muting is invoked. (See section 3.5, Priority Muting, on the following page.)



3.3.3 Line/Mic Gain Switch

Additional gain is available for use with sources, in particular microphones, that have low output levels. Switching to MIC position activates 48dB additional gain. Use only when necessary as the added gain may cause higher noise levels.

3.3.4 Phantom Power

Phantom power (27V) can be applied to specific mic inputs by turning on the appropriate Phantom Power switch.

3.4 VOX Function

Voice activated ducking is available on input channel 2 of the VMA160, VMA1120 and VMA1240. The feature is available for both input channels 2 and 5 of the VMA260, and VMA2120. The audio input level required to activate ducking is set using the trim pot on the rear panel. Adjusting in the counterclockwise direction will reduce that level while the full clockwise setting will disable the VOX function.

3.5 Priority Muting

VMA160, VMA1120 and VMA1240 may use Input channel 2 as a priority channel, muting all other channels when pins 4 and 5 are shorted using a switch closure.

The VMA260, and VMA2120 lets Input2 operate with priority over all inputs into output amplifier CH1. Similarly, Input5 can exercise priority over all inputs into output amplifier CH2. Input2 will have priority over both amplifiers CH1 and CH2 if the routing DIP switch #2 is set to ON.

3.6 Remote Volume Control

Remote volume control can be implemented using a CSR-V controller connected via a CAT5 cable to the RJ45 connector on the back panel. For the VMA260 and VMA2120, there are two connectors, one for each amplifier output.

3.7 Media Player

3.7.1 Bluetooth Operation

To activate Bluetooth, perform the following:

1. Press the Bluetooth Key until the Bluetooth Indicator begins to flash.
2. Enable Bluetooth of your source media player and search for “JBL COMMERCIAL (XX)”. Establish a connection. (Note that the “XX” represents the last two digits of the MAC address which allows the user to have multiple systems in close proximity.)
3. Once connected, the Bluetooth Indicator will stop flashing and remain illuminated.
4. Press the VOLUME UP/VOLUME DOWN keys to increase or decrease the volume.
5. Press the NEXT key to jump to the beginning of the next track.
6. Press the PREVIOUS key once to jump to the beginning of the current track or twice to the previous track.
7. Press the STOP key to stop playing. (**Note: This may not work for some Bluetooth devices.**)
8. Press the PLAY/PAUSE key to pause or resume playing.
9. To disconnect, either press the Bluetooth Key or disable Bluetooth at the media player source device. (**Note: Play will resume automatically upon reconnect if disconnected by pressing the Bluetooth Key.**)
10. Press the REC key to start recording. (**Note: Media player signals are not recorded.**)

Note: Bluetooth signal is muted when broadcasting the chime tone.

3.7.2 USB Operation

1. Insert a USB Drive to the USB Audio Input and the number of folders and files on the USB Drive will be displayed.
2. Press PREVIOUS or NEXT Key to scroll the playable media.
3. Press the VOLUME UP/VOLUME DOWN keys to increase or decrease the volume.
4. Press the REPEAT Key to enter different repeat modes:
 - REPEAT CURRENT – Repeat the current track.
 - REPEAT ALL – Repeat all tracks.
 - REPEAT ALL 30Min Message – Play the track with the predefined name, “MESSAGE_1.mp3” every 30 minutes while repeating all other tracks.

- REPEAT ALL 60Min Message – Play the track with the predefined name, “MESSAGE_1.mp3” every 60 minutes while repeating all other tracks.
 - REPEAT OFF – No repeat.
5. Press the PLAY/PAUSE key to pause or resume playing.
 6. Press the STOP key to stop playing.
 7. Press the PREVIOUS Key once to jump to the beginning of the current track or twice to the previous track.
 8. Hold down the PREVIOUS Key to rewind.
 9. Press the NEXT Key to jump to the beginning of the next track.
 10. Hold down the NEXT Key to fast forward.
 11. Press the REC key to start recording. (**Note:** *Media player signals are not recorded.*)

3.7.3 Additional Media Player Information

Bluetooth playback will always have priority over USB.

The default media player volume is maximum.

USB and Bluetooth signals cannot be recorded.

While playing from the USB or Bluetooth source, the signal being played is interrupted momentarily when a chime tone is sounding in another channel.

Hidden functions are available by pressing and holding a media player key for more than 1 second then pressing and holding the Bluetooth key along with it.

- | | |
|---------------------|-------------------------------------|
| • RECORD (>1s) + BT | Displays the BT MAC address |
| • STOP (>1s) + BT | Displays the firmware version |
| • PLAY (>1s) + BT | Illuminates all dots in the display |
| • REPEAT (>1s) + BT | Factory Reset |

3.7.4 Firmware Upgrade Procedure

1. Place the firmware file “*.mcs” onto a blank USB Drive.
2. Insert the USB Drive.
3. Display will show “USB UPGRADE”.
4. Wait until display shows “USB SUCCESS” and the display turns off.
5. Power off the unit.
6. Remove the USB Drive.
7. Power on the unit, the upgrade procedure is finished.

4.0 Troubleshooting

illuminated.

POSSIBLE REASON: The mixer-amplifier is not plugged into the power outlet.

CONDITION: No sound or low sound.

POSSIBLE REASON: The input signal is not present or at a very low level.

POSSIBLE REASON: The Master Volume control is turned down.

POSSIBLE REASON: A CSR-V is connected and turned down.

POSSIBLE REASON: Mixer channel inputs are turned down.

POSSIBLE REASON: A Priority switch is closed, muting all except the priority input.

POSSIBLE REASON: The 70V/100V switch is OFF while using the 70V or 100V outputs.

CONDITION: Distorted sound.

POSSIBLE REASON: Input signal level is too high. Please turn down the input level controls. **Note that the mixer-amplifier should not be operated at a level that allows the clip indicator (red ring around the Master Volume) to be constantly ON.**

POSSIBLE REASON: Master Volume is too high.

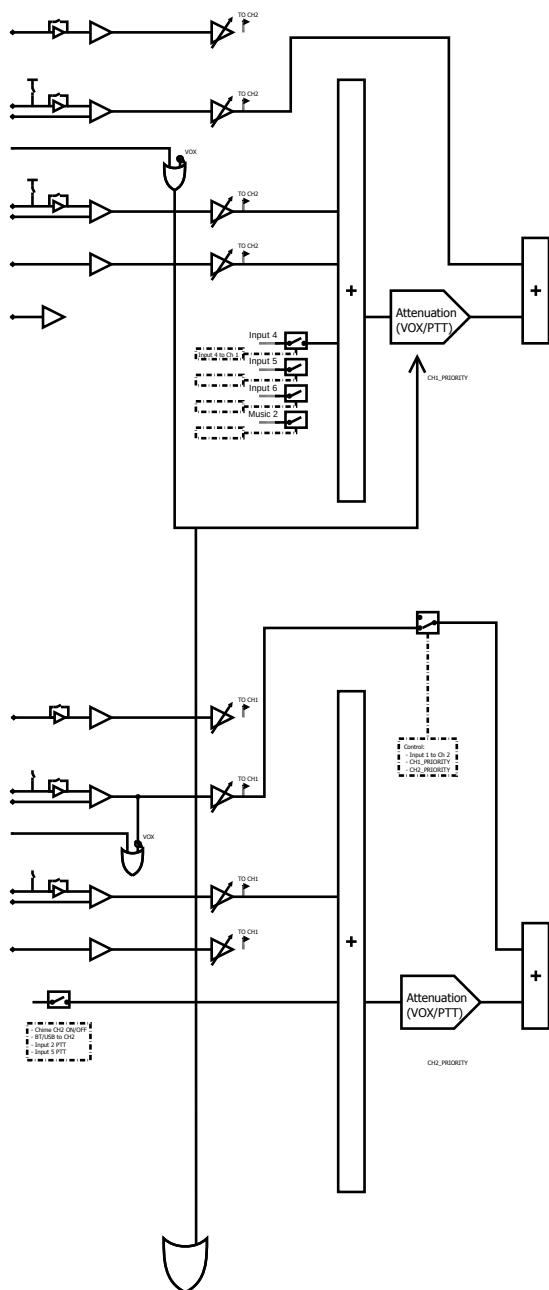
POSSIBLE REASON: MIC/LINE switch is in MIC position when using a line level source.

Performance	VMA160	VMA1120	VMA1240	VMA260	VMA2120
Max Output Power per Channel into 4 Ω or 8 Ω; 1kHz, ≤ 0.5% THD	60W	120W	240W	60W	120W
Insertion Loss (70V & 100V outputs)	1 dB maximum				
Number of Input Channels	5	5	5	8	8
Number of Output Channels	1	1	1	2	2
Tone Controls (Bass and Treble non-detented potentiometers on each channel)	Bass +/-14dB @ 50Hz Treble +/-14dB @ 10kHz				
Input Sensitivity (to obtain full rated power into 8 Ω load)	Mic Input: 5.5mV _{RMS} Line Input: 1.3V _{RMS} RCA Input (stereo in): 130mV _{RMS}				
Frequency Response (measured at 2.83V _{RMS} into rated load impedance at any output)	4/8 Ω Output: 20Hz - 20kHz, +/-2dB 70V/100V Outputs: 80Hz - 15kHz +/-3dB				
Total Harmonic Distortion (THD) (measured at 2.83V _{RMS} into rated load impedance at any output)	Power Amp Output: <0.5%, 20Hz - 20kHz				
Signal-to-Noise Ratio (Ref. Rated Power, mixer levels @ min., master volume @ max. A-weighted)	>76dB				
Input Impedance (nominal)	Mic: 400 Ω Line: 20 kΩ (balanced) RCA: 50 kΩ				
Phantom Power	27VDC				
Crosstalk (reference rated power, volume at mid position, 1kHz)	-70 dB				
Nominal AC Line Voltages	100V, 120V, 220V, 220-240V, 50/60 Hz				
Minimum Load Impedance Low Impedance Output 70V Output 100V Output	4 Ω 80 Ω 160 Ω	4 Ω 40 Ω 80 Ω	4 Ω 20 Ω 40 Ω	4 Ω 80 Ω 160 Ω	4 Ω 40 Ω 80 Ω
Operating Temperature/ Humidity	0°C to 35°C @ 95% R.H. (non-condensing)				
Storage Temperature	-20°C to 85°C				
Dimensions & Weight					
Net Weight	19.4 lb (8.8 kg)	20.2 lb (9.2 kg)	25.5 lb (11.6 kg)	25.5 lb (11.6 kg)	29.3 lb (13.3 kg)
Dimensions	Width: 17.0 in. (432 mm) Depth: 16.3 in. (415 mm) Height: 3.5 in. (88 mm)				
Shipping Weight	24.6 lb (11.2 kg)	25.5 lb (11.6 kg)	30.8 lb (14 kg)	30.8 lb (14 kg)	34.5 lb (15.7 kg)

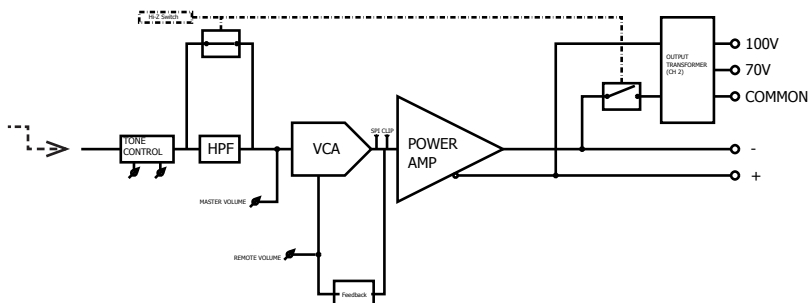
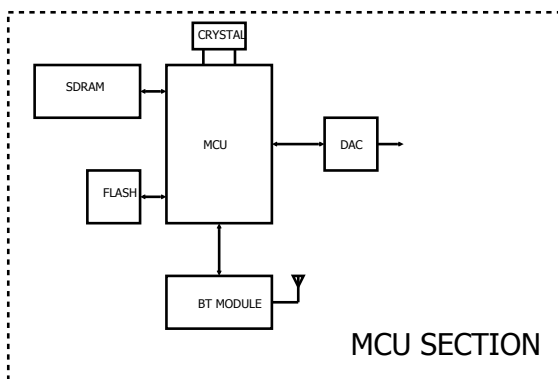
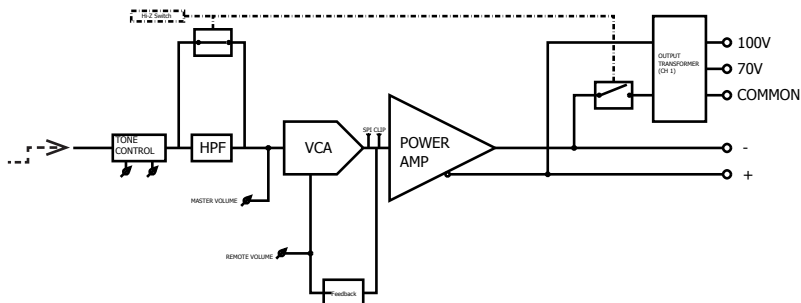
Note: For AC power draw and thermal dissipation information, please visit our website. www.jblcommercialproducts.com

Appendix B: Block Diagrams

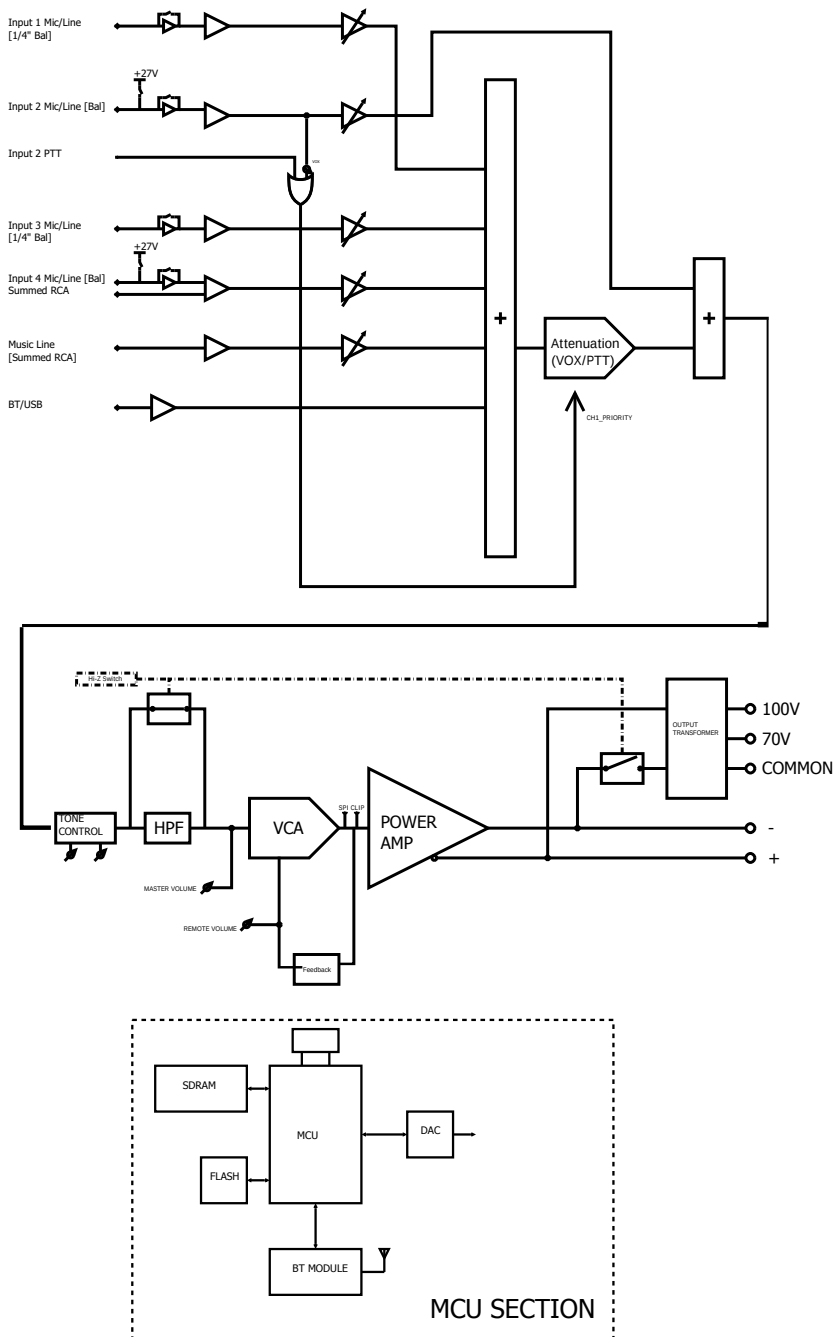
VMA260 & VMA2120



VMA260 & VMA2120 Continued



VMA160, VMA1120 & VMA1240



Appendix C: Contact Information

For additional information, please consult JBL Professional Customer Service, your system installer or retailer.
