

# MA30/MA60

## Mixing Amplifier

### Installation & Operation Guide

**biamp**<sup>™</sup>



## PRODUCT DESCRIPTION

The MA30 and MA60 are half-rack, 30W or 60W (respectively) single channel mixing amplifiers. Designed for ease of use, the front panels of the MA30/MA60 include volume and microphone controls which provide a visual indication of system operation. The MA30/MA60 is equipped with four priority levels for audio routing: one emergency input, one paging input, one mic/line input, and two stereo line, mono summed inputs.

## FEATURES

- Single channel; 30/60 watts of continuous power
- Supports 4Ω and 70V/100V outputs
- Class D amplifier topology
- Four priority levels for audio routing
- 24V priority output overrides local volume controls
- Dedicated emergency input with mute all switch
- Paging mic input with contact closure and chime
- One mic/line level input with 48V phantom power
- Two stereo inputs
- Fan-less operation
- Internal universal power supply
- Auto standby mode
- Rack mountable (2RU) with optional accessory

## ⚠ IMPORTANT SAFETY / COMPLIANCE INFORMATION

- Do not exceed the ambient temperature of 0° - 35°C (32° - 95° F). Operating the unit beyond its normal limits may cause overheating.
- This unit has not been designed for use in mobile applications such as mobile discobars, mobile PA systems, live bands or audio rental systems. Using it in such application may damage products and increase safety risks.
- This equipment is not suitable for use in locations where children are likely to be present.

## SETUP AND USE

This amplifier relies on convection cooling, so no fans are installed. Make sure there is adequate airflow when installing this device in a rack or other enclosed space.

The unit can be installed in a 19 inch rack system using the included brackets, but the ventilation holes should never be blocked. Allow at least one free rack space or approximately 1.7 inches (44 mm) above the amplifier. If necessary, use a forced ventilation system if the rack holds multiple amplifiers.

The mains fuse is located in the mains inlet. It should be replaced with a fuse of the same current and voltage rating:

- **MA30: T 1 AL / 250 V**
- **MA60: T 1.6 AL / 250 V**

Before using the amplifier for the first time, check the total impedance of your speaker lines using an impedance meter. Temporarily disconnect the speaker line from the amplifier and measure the speaker line.

Minimum load impedance @ 100V must be 167 ohms or more (MA60) or 333 ohms or more (MA30). These values correspond to 60 and 30 watts @ 100V.

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**NOTE:** MA30 shown; MA60 functions are identical

## MA30/MA60 FRONT PANEL

### 1. On / Standby Switch

Pushing this button puts the unit in an active or standby state (the main power switch at the rear of the unit and must be switched on) When the unit is powered on, the on/standby button LED will light up steadily. Standby may be disabled from the rear panel.

### 2. MIC On / Off Switch

Turns the microphone on or off.

### 3. Mic Volume Control Knob

Controls the microphone volume.

### 4. Name Field

Users may attached supplied naming stickers in this area.

### 5. Input 1 Selection Button

Press to select or deselect Input 1. Only one input can be selected at a time.

### 6. Input 2 Selection Button

Press to select or deselect Input 2. Only one input can be selected at a time.

### 7. Volume Control Knob

Controls the volume of Input 1 or 2 (whichever is selected)

### 8. Status LEDs

#### S/C (signal/clip)

- Green when a signal is present
- Red if the amplifier is clipping

#### Protect

- Indicates an overload is occurring
- Amplifier will mute until conditions normalize

#### Emergency

- Indicates an emergency message is playing
- All other contacts are muted

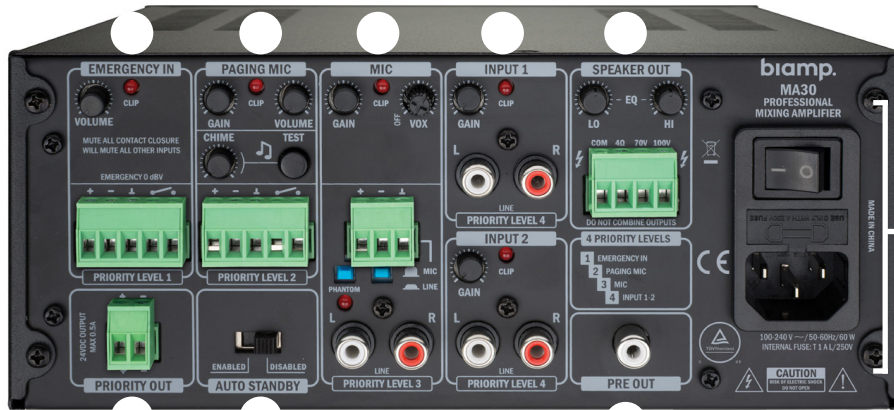
#### Paging

- Indicates if a paging contact or chime test button is closed

#### Vox Mic

- Indicates the vox circuit (mic) is active.

**NOTE:** the button for MIC and Input 1 or 2 may be activated simultaneously. The volume of the MIC is controlled by knob (3). The volume knob (7) does not affect the output volume of the MIC. When the vox circuit from MIC is enabled, MIC will attenuate the input 1-2 signal (30dB attenuation). The emergency input and paging microphone levels and settings can only be set at the rear panel (out of reach of an end user).



**NOTE:** MA30 shown; MA60 functions are identical

## MA30/MA60 REAR PANEL

### 1. Emergency Input

Connect a balanced 0 dBV line level to the emergency input. If available, connect the emergency contact at the “mute all” connection. The contact must be “potential free”, (i.e. a relay or switch contact that does not carry any foreign voltage.) The emergency level can only be set with the volume control. If the clip LED lights up when the emergency signal is present, lower the level of the emergency signal at the source to avoid distortion. Activating the emergency input will also activate the priority output (6).

### 2. Paging Mic Input

This input accepts microphone level signals on balanced euroblock and line level signals on RCA. Adjust the gain potentiometer so that the clip LED is not lit when the signal is at its highest level. Set the volume control as desired. When the paging contact is closed, all other sources (except emergency input) will be muted and the chime will sound. Set the chime level as desired. The paging contact will also activate the priority output (6). Push the chime test button to hear the level.

**NOTE:** the paging mic message will be muted as long as the chime sounds (approximately two seconds), even if the chime level is set to the minimum level (off.)

### 3. Mic

The euroblock input accepts balanced microphone or line level signals. Set the mic/line switch accordingly. Phantom power (48V) can be applied to the balanced euroblock by pushing the phantom power switch (indicated by the LED). Adjust the gain potentiometer so that the clip LED does not light up when the signal is at its highest level. If necessary, activate the vox circuitry by turning the vox potentiometer until you hear an audible “click”. Then turn the vox potentiometer up until the vox circuit is activated. The MIC volume can be set using the front panel potentiometer (3).

MIC can be activated by pressing the MIC select switch on the front panel (2). When activated, the vox circuit will attenuate all lower priority sources (input 1-2) 30 dB. The MIC input is compatible with the local input panel.

### 4. Input 1 & 2

Line level inputs for RCA connectors. Adjust the gain potentiometer so that the clip LED does not light up when the signal is at its highest level.

### 5. Speaker Out/Output EQ

Euroblock speaker output connector (4 ohm, 70V and 100V) *Never use more than one output at the same time.* Use the Lo and Hi EQ potentiometer to adjust the sound as desired.

### 6. Priority Out

Supplies 24 VDC, max 500 mA when priority is activated. Priority will be activated by the emergency switch or by the paging contact and the chime test button on the paging mic input. Typically 24V priority is used to override volume controllers present on speaker lines.

**NOTE:** do not use the priority output continuously at full power (24V, 0.5A).

### 7. Auto standby

Enables/disables auto standby.

### 8. Pre Out

Carries the same line level signal being fed to the power amplifier, i.e. the signal level is determined by the position of the master volume control.

### 9. Mains Inlet and Mains Power Switch

Mains power connection and power switch. Mains fuse is also located here.

# INSTALLATION

## Rack Mounting

Review Safety and Compliance and Setup and Use sections on Page 1 of this document prior to installation.

The MA30/60 may be mounted in numerous configurations based on preference and need. The MA3060-19 mounting kit (sold separately) will allow the amplifier to be mounted as follows:



Figure 1. Half-Rack Installation



Figure 2. Under-Counter Installation



Figure 3. Full-Rack Installation

Two MA30/60 units may also be connected via plates and screws to fit in a single rack (19 inches wide).

Use the hardware as follows:

- Short screws: bottom connection plates
- Long screws: rack ears
- Use existing hardware on the amplifier for the rear connection plates

Install the connection plates as follows:

1. Set the two amplifiers next to each other, bottom facing up as shown in Figure 4.



Figure 4. Flip Units

2. Install the lower plates (two places) with four screws each (eight screws total) as shown in Figure 5.

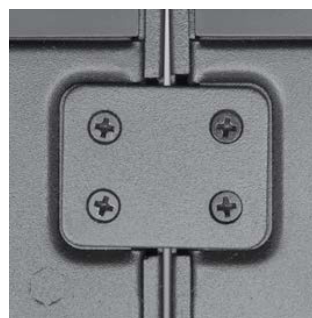


Figure 5. Install Bottom Plates (2 places)

3. Install the back plates (two places) with two screws each (four screws total) as shown in Figure 6.



Figure 6. Install Back Plates (2 places)

## INSTALLATION (CONTINUED)

4. Install the rack ears as shown in Figure 7.



Figure 7. Install Rack Ears

### Input Labels

Pre-printed and blank adhesive labels are provided with the amplifier. Installers may adhere these labels to identify functions as needed. See Figure 8.



Figure 8. Labels

## Wiring & Connections

The following section provides common/practical examples of wiring and connections.

### Speakers

The example in Figure 9 shows a 100V speaker line connection.

The 4 ohm and 70V connectors are not used. Connect the common or speaker line ground wire to the COM connector and the 100V line to the 100V connector. The minimum speaker line impedance is 333 ohms (MA30) and 167 ohms (MA60). Check the impedance with an impedance meter before connecting the speaker line to the amplifier.



Figure 9. Speaker Connections



**CAUTION:** never use more than one output

at a time and do not overload the speaker output. In 70V and 100V speaker lines, the power of all speakers in the chain must be added. The total power **MUST** be lower than or equal to the amplifier's output power.

For example: on a 240 watt 100 volt amplifier, you can connect 4 x 60 watt 100 volt speakers in parallel:  $4 \times 60 = 240$  watts. Always measure the speaker line with an impedance meter or speaker line watt meter.

### Paging Mic

1. Make the connections as shown in Figure 10. The + - GND is used for the balanced signal of the microphone. Black and yellow are the paging contacts. Grey is screen.



Figure 10. Paging Mic Connections

2. Close the paging contact (keep it closed.)
3. See Figure 11. Turn the gain control slowly clockwise while speaking loudly into the mic until the clip LED lights up at the highest peaks. Turn the control back slightly. Open the volume control until the paging message sounds at the desired volume through the connected speakers.



Figure 11. Adjust Gain & Volume

4. Open the paging contact

## Wiring & Connections (Continued)

- See Figure 12. Turn the chime potentiometer approximately halfway and push the TEST button to listen to the chime. Adjust the volume from the chime potentiometer as required. Closing the paging contact will also activate the chime.

NOTE: the paging mic and chime levels are independent from the position of the large volume control on the front of the unit. The paging contacts must be potential free, i.e. no voltages should be present on these connectors.



Figure 12. Paging Mic Adjustments

### Input 1 & 2

- Connect the output of the line source to the RCA connectors at Input 1 (or 2) as shown in Figure 13.
- See Figure 14. While the line source is playing, turn the gain control slowly clockwise until the clip LED lights up at the highest signal peaks. Turn the back control back slightly.



Figure 13. Input Connections



Figure 14. Adjust Gain

- Select INPUT 1 (or 2) on the front panel. Increase the volume (large volume control knob) on the front panel to hear the selected source through the speaker(s).

NOTE: use the gain control to equalize the level differences between sources. For example, if the CD player on Input 1 is louder than the radio on Input 2, adjust the gain control of the CD player input slightly lower to compensate for the difference in output level. When a stereo source is connected, the signals of the left and right inputs will be mixed to mono. A mono source may be connected on the L or R channel RCA connector.

## Standby Function

The auto standby function can be enabled/disabled via the switch at the rear of the unit (item 7, page 3). The power/standby button LED will slowly fade in/out to indicate that standby is activated.

There are two standby modes:

- Manual standby - activated by pushing the power button on the front of the amplifier.
- Auto standby - activated via auto standby circuitry.

The amplifier will enter auto standby mode after 10 minutes when:

- Auto standby is enabled.
- No audio signal is present on the selected input\* or when no input is selected.
- No emergency signal is present and the emergency contact is not closed.
- The paging contact is not closed.

The amplifier will wake from auto standby mode when:

- The previously selected sound source is activated (i.e. a signal is present on the previously selected input\*\*).
- Any front button is pushed.
- A paging contact or chime test button is activated.
- The emergency input is activated by closing the emergency switch.
- Power is cycled via the rear power switch or a mains power interruption.

The amplifier will wake up from manual standby when:

- The standby / power button is pressed.
- The emergency input is activated by closing the emergency switch.
- Power is cycled via the rear power switch or a mains power interruption.
- Any front button is pushed.

**\*NOTE: Audio cable interference (noise) and/or an excessively long audio cable at the selected input may prevent the unit from entering auto standby mode.**

**\*\*The minimum required signal level required to wake up the unit from auto standby is 2-10 mVrms for line inputs and 0.1-1 mVrms for microphone signals.**

## CONTACT US

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**Note:** Every effort has been made to insure that the information contained in this manual was complete and accurate at the time of printing. However, due to ongoing technical advances, changes or modifications may have occurred that are not covered in this manual. The latest version is available at [www.biamp.com](http://www.biamp.com).