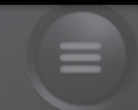


apart

MA60

PROFESSIONAL MIXING AMPLIFIER



MIC

5

ON - STANDBY

0

10

MA30 / MA60

Instruction manual

MA30 / MA60 manual



IMPORTANT SAFETY INSTRUCTIONS




- Read these instructions - All the safety and operating instructions should be read before this product is operated.
- Keep these instructions - The safety and operating instructions should be retained for future reference.
- Heed all warnings - All warnings on the appliance and in the operating instructions should be adhered to.
- Follow all instructions - All operating and use instructions should be followed.
- This professional device needs to be installed by qualified personnel only.
- Danger: Exposure to high sound levels may cause a permanent hearing loss. Individuals vary considerably to sound pressure level induced hearing loss but nearly everyone will lose some hearing if exposed to high sound pressure levels for a sufficient amount of time. Therefore it is recommended that all persons exposed to equipment capable of producing high sound pressure levels, such as this amplifier, be protected by hearing protection while installing or operating this unit.
- Make sure to only use power outlets conform to the power requirements listed on the back of the unit.
- Do not connect the inputs / outputs of amplifiers or consoles to any other voltage source, such as a battery, mains source, or power supply, regardless of whether the amplifier or console is turned on or off.
- Do not drive the inputs with a signal level higher than that required to drive equipment to full output.
- Do not run the output of any amplifier back into another input.
- This unit has NOT been designed for use in mobile applications, such as: mobile discobars, mobile PA systems, Live bands, audio rental systems, ... Using it in such application will lead to product damages and safety risks.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarised or grounding plug.
A polarised plug has two blades with one wider than the other. A grounding plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. Always use the device with a grounded mains power plug. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on, pinched or damaged. Particularly at the plugs, connectors and at the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug the apparatus during lightning storms or when unused for long periods of time.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart or rack is used, use



caution when moving the cart/apparatus combination to avoid injury from tip-over.

- Refer all servicing to qualified 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 has been exposed to rain or moisture, does not operate normally, or has been dropped.
- **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. The apparatus shall not be exposed to dripping or splashing and that objects filled with liquids, such as vases, shall not be placed on apparatus.
- **WARNING:** The mains plug/appliance coupler is used as disconnect device, the disconnect device shall remain readily operable.



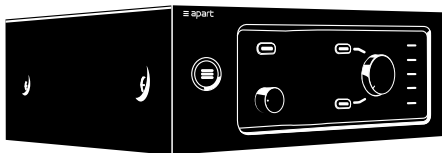
- This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.
 - **Warning:** To reduce the risk of electric shock, do not remove cover (or back) as there are no user-serviceable parts inside. Refer servicing to qualified personnel.
 - The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.
-  Caution: To reduce the risk of electric shock.
-  Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.
-  Correct Disposal of this product. This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.
- No naked flame sources, such as lighted candles, should be placed on the apparatus.
- Minimum 5 cm distances around the apparatus for sufficient ventilation.
- Do not install this equipment in a confined or building-in space such as a book case or similar unit, and remain a well ventilation conditions at open site. The ventilation should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, curtains etc.
- The use of apparatus in moderate climates.

Introduction

“Setting a new industry standard”

When we, at Apart, look at mixing amplifiers today it seems like the complete pro audio industry slumbered. Stuck into old habits, the overall look and feel remains a hassle for both users and installers worldwide.

Due to extensive research and input from our partners, our R&D department together with a world leading design company succeeded in redefining the look of the “mixing amplifier” as we know it today.



The new and revolutionary Apart MA30 and MA60 mixing amplifiers offer the end-user an unseen cutting edge design and ease of use. The groundbreaking front panel is clear and easy to use without any unnecessary bells and whistles.

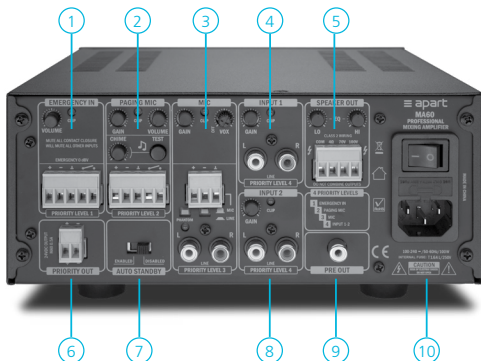
What you see is what you get, but there is more: the refreshing rear panel will give every installer an instant gratification due to the sheer and logic design.

Together with an unknown connectivity and immaculate sound performance this reliable mixing amplifier is the new standard in the fixed install audio market.

Features

- 2U high with removable rack ears
- ½ rack width, possibility to join 2 units into one 19" wide unit
- High power class-D power amplifier module with 100 volt output transformer
- Output power:
 - MA30: 1 x 30 W @ 70 V / 100 V / 4 ohm.
 - MA60: 1 x 60 W @ 70 V / 100 V / 4 ohm.
- High thermal efficiency.
- PRE-AMP output.
- Patented front panel designed to create an intuitive user interface.
- Front control for end-user and back panel for configuration installer (out of reach of end-user).
- Universal switching mode power supply.
- Auto standby mode (can be switched off) with < 0.5 W standby.
- 24 volt DC / 500 mA priority output.
- Dedicated emergency input with mute all switch.
- Paging mic input with contact closure and chime.
- Front panel operated mic with switchable vox.
- 2 line inputs on RCA.
- Signal clip indicators and gain control on all inputs for fast and easy configuration of the input gain.
- No cooling fan – maintenance free.
- Extended speaker and amplifier protection circuits: over current protect, over temperature protect, APC clip limiter.
- 4 priority levels for audio routing.

Connections



1. **Emergency input:** connect your balanced 0 dBV line level emergency input on the euroblock connector. 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 be set with the volume control only. 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:** connect your paging mic here: the input accepts microphone level signals on balanced euroblock and line level signals on RCA. Adjust the gain potmeter so that the clip led does not light up when the signal is at its highest level. Then 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). To test the chime level, a chime test button is present.

- MIC input:** connect a microphone here: the euroblock input accepts balanced microphone or line level signals. Set the mic/line switch accordingly. Phantom power (48 V) can be applied to the balanced euroblock by pushing the phantom power switch. The led beneath the switch will be lit when phantom power is present. Adjust the gain potmeter 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 potmeter until you hear an audible "click". Now turn the vox potmeter up until the vox circuit is activated. The MIC volume can be set using the front panel potmeter (6). MIC can be activated by pressing the MIC select switch on the front panel (2). The vox circuit, when activated, will attenuate (30 dB attenuation) all lower priority sources (input 1-2). MIC input is compatible with the local input panel .
- Input 1:** line level input on RCA connectors. Adjust the gain potmeter so that the clip led does not light up when the signal is at its highest level.
- Speaker out and output EQ:** speaker output connector on euroblock. Use the 4 ohm, or the 70 volt or the 100 volt output. Never use more than one output at the same time. Use the Lo and Hi EQ potmeters to adjust the sound as desired.
- Priority out:** this connector will supply 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, 24 volt priority is used to override volume controllers present on speaker lines.

7. **Auto standby:** set the switch to “enabled” to enable auto standby.
8. **Input 2:** line level input on RCA connectors. Adjust the gain potmeter so that the clip led does not light up when the signal is at its highest level.
9. **Pre-out:** the pre-amp output carries the same line level signal that is being fed to the power amplifier, i.e. the signal level is determined by the position of the master volume control.
10. **Mains inlet and mains power switch:** connect the mains power cord here. Switch on the power switch to power up the unit. The mains fuse is also located here.

Note: emergency switch and the paging contact (and the chime test button) will mute all lower priority input signals. MIC vox will attenuate all lower priority input signals by 30 dB. This is also known as “voice over circuit”.

The chime can only be activated by closing the paging contact (and the chime test button) on the paging mic.

As long as the chime sounds (approx. 2 sec), the paging message will be muted, even if the chime level is set to the minimum (off) level.

Don't use the priority output continuously at full power (24V, 0.5A).

IMPORTANT!

This amplifier relies on convectional cooling. In normal situations, overheating will not occur due to the class-D amplifier topology. Since there are no cooling fans in the amplifier, make sure the convectional cooling system can work properly. The unit can be built in a 19 inch rack system using the included 19 inch brackets, but the ventilation holes should never be blocked. Therefore, it is absolutely necessary to allow at least one free rack space or 44 mm above the amplifier.

Make sure the ambient temperature is between 0 and 35°C. Operating the unit beyond its normal limits may cause overheating. If necessary, use a forced ventilation system in your mounting rack when the rack holds multiple amplifiers.

The mains fuse is located in the mains inlet. When the fuse is broken, replace it with a fuse of the same current and voltage rating:

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

For qualified personnel only!

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

Operation



1. **On / Standby switch:** switch the unit on from standby by pushing this button. Switch to standby by pressing again. Please note that the main power switch at the rear of the unit (10) must be switched on. Read more about standby on the next page. When the unit is on, the on/standby button led will light up steadily.
2. **MIC on/off switch:** use this switch to turn the MIC on and off.
3. **Input 1 selection button:** by pressing this button, you can select input 1, or switch off the selected input by pressing the button when it is lit. You can only select one input at a time.
4. **Volume knob:** turn the knob clockwise to increase the volume, counterclockwise to decrease. The volume knob sets the output volume of the selected input 1 – 2 only.
5. **Status leds:** S/C or signal/clip led lights up green when a output signal is present and turns red when the amplifier is clipping. Protect led lights up when an overload occurs. The amplifier will mute until the condition is normal again. Emergency led will light up to indicate that an emergency message is coming through (mute all contact). The paging led lights up when the paging contact (or the chime test button) is closed. Vox MIC will light up to indicate

that the vox circuit of MIC is active. The vox circuit will not be active when MIC is not lit (front button 2).

6. **MIC volume control:** this knob determines the output volume of MIC.
7. **Name field:** here you can attach the source name stickers supplied with the unit.
8. **Input 2 selection button:** by pressing this button, you can select input 2, or switch off the selected input by pressing the button when it is lit. You can only select one input at a time.

Note: you can switch on MIC and input 1 or 2 simultaneously. The volume of MIC is determined by knob (6). Volume knob (4) has no influence on the output volume of 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 the enduser.

Standby

The auto standby function can be enabled/disabled via a switch (7) at the rear of the unit. The power/standby knob led will slowly fade in/out to indicate that standby is activated.

Basically, there are 2 standby modes:

- manual standby: activated by pushing the power button on the front.
- auto standby: activated by the auto standby circuitry.

The unit will go to auto standby after 10 minutes when all these requirements are fulfilled:

- 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 unit will wake up from auto standby when:

- Activating the previously selected sound source (i.e. signal present on the previously selected input**).
- Pushing any front button.
- Activating the paging contact (or the chime test button).
- Activating the emergency input by closing the emergency switch.
- Cycling the power using the rear power switch (or a mains power interruption).

The unit will wake up from manual standby when:

- Pressing the standby / power button.
- Activating the emergency input by closing the emergency switch.
- Cycling the power using the rear power switch (or a mains power interruption).
- Pushing any front button.

**Note: when the audio cable at the selected input is long and noisy, the unit will not go to 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.*

Mounting the mixing amplifier

With the optional mounting kit MA3060-19, you can:

- Mount the amplifier in a 9.5 inch rack (aka half-rack or 10 inch rack)



- Mount the amplifier under a shelf or under a counter



- Mount the amplifier in a 19 inch rack



- Convert 2 mixing amps into one 19" unit



Use only the screws supplied with the MA3060-19 kit:

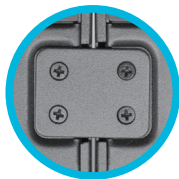
- Short screws: used for the bottom connection plates
- Long screws: used to attach the rack ears
- The rear connection plates are mounted with the original rear panhead screws
- If necessary, remove the rubber feet

Connect two units with the provided connection plates and screws.

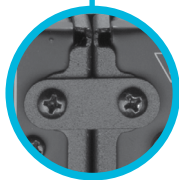


Turn devices upside down

2x



2x



Input labels

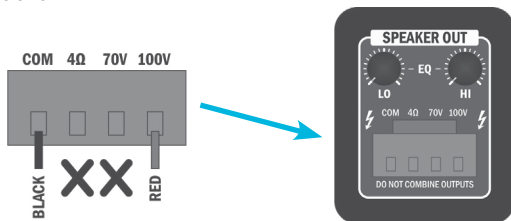
Use the sticker paper included in the box to attach labels to the front panel inputs. The blank labels can be personalised.



Practical examples

a. Connecting the speakers

Example: 100 volt speaker line.
Connect the speaker line wires as shown.



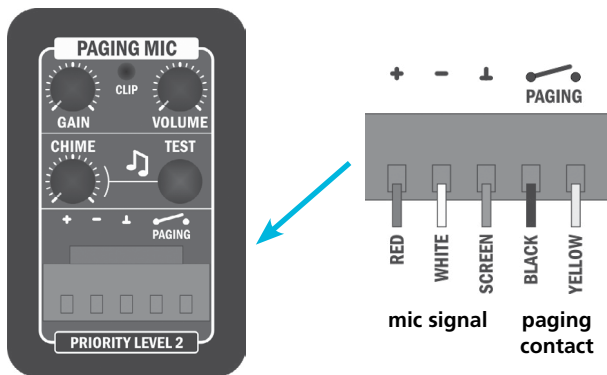
The 4 ohm and 70 volt connectors are not used. Connect the common or speaker line ground wire to the COM connector. Connect the 100 volt line to the 100 volt connector. The minimum speaker line impedance is 333 ohms (MA30) and 167 ohms (MA60). Check the impedance with an impedance meter before connecting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

Note: never use more than one output at a time ! Do not overload the speaker output. In 70 and 100 volt 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

b. Connecting and setting up a paging microphone

1. Connect the microphone wire as shown in the picture.
The + - GND is used for the balanced signal of the microphone.
The paging contact closure is indicated in the picture.



2. Close the paging contact and keep it closed.

3. While speaking in the microphone as loud as possible, turn the gain control slowly clockwise until the clip led lights up at the highest peaks. Now turn the control back a little. Open the volume control until the paging message sounds as loud as desired through the connected speakers.



4. Open the paging contact.

5. Turn the chime potmeter about halfway, push the “test” button to hear the chime and adjust the chime volume as desired using the chime potmeter. You can also close the paging contact to activate the chime.

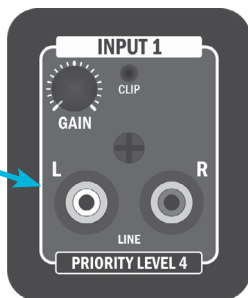


Note: the paging mic and chime levels are independent from the position of the big volume control on the front of the unit.

The paging contacts must be potential free, i.e. no voltages should be present on these connectors.

c. Connecting a line source (tuner, CD player, ...) to input 1

1. Connect the output of the line source to the cinch connectors of input 1.



2. While the line source is playing, turn the gain control on input 1 slowly clockwise until the clip led lights up at the highest signal peaks. Now turn the control back a little.

3. Select "INPUT 1" on the front panel. Turn up the big volume control on the front panel to hear the selected source through the speaker(s).

Note: use the gain control also to equalize the level differences between sources. For example, if the CD player on line input 1 plays "louder" than the radio on line input 2, turn the gain control of the CD player input a little 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. You can also connect a mono source on the L or R channel cinch connector.

warranty info

Warranty claims and claims for hidden defects can be considered only if the defects appear within the warranty period of 24 months and are notified within 8 days following their appearance per registered letter. The warranty is not valid in case of an incident, wear, for moving parts, power surges, inadequate packing or shipping, improper use or storage and the disregard of recommendations of Apart Audio. The warranty only concerns the spare parts and not the involved labor, transportation or any other costs. The product must be returned in the original packaging with the proof of purchase by an Apart Audio authorized reseller.

The general terms and conditions can be found here:

http://www.apart-audio.com/conditions/General_Terms_and_Conditions_Apart_Audio.pdf

Technical specifications

| Product name | MA30 | MA60 |
|--|---|------|
| Emergency input | | |
| Nominal input sensitivity | 0 dBV (1 Vrms) | |
| THD+N @ -6dB (pre-out) | < 0.5% | |
| Frequency response (-3dB) | 100 Hz – 20 kHz | |
| Input impedance | 5 kohms | |
| Paging mic | | |
| Nominal input sensitivity bal. mic (gain max) | -45 dBV (5.6 mVrms) | |
| THD+N @ -6dB (pre-out) | < 0.4% | |
| Frequency response (-3dB) | bal mic: 165 Hz – 20 kHz unbal, bal line: 20 Hz – 20 kHz | |
| Gain | -15 to +15 dB | |
| Length chime | 2 s | |
| Input impedance | 2 kohms | |
| Mic | | |
| Nominal input sensitivity bal. mic (gain max) | -45 dBV (5.6 mVrms) | |
| Nominal input sensitivity bal. line (gain max) | -12 dBV (250 mVrms) | |
| Nominal input sensitivity unbal. line (gain max) | -12 dBV (250 mVrms) | |
| THD+N @ -6dB (pre-out) | < 0.2% | |
| Frequency response (-3dB) | bal mic: 165 Hz – 20 kHz unbal, bal line: 20 Hz – 20 kHz | |
| Phantom | voltage: 48 V | |
| Local input compatibility | yes | |
| Vox attenuation MicB, Input1-4 | 30 dB | |
| Input impedance | 2 kohms | |
| Input 1-2 | | |
| Nominal input sensitivity unbal. Line (gain max) | -12 dBV (250 mVrms) | |
| THD+N @ -6dB (pre-out) | < 0.1% | |
| Frequency response (-3dB) | 20 Hz – 20 kHz | |
| Input impedance | 10kohms | |

| Product name | MA30 | MA60 |
|--------------------------------------|--|--------------------|
| Priority output | | |
| Voltage | 24 V | |
| Max current | 0.5 A | |
| Amplifier output | | |
| RMS output power (1%THD) | 30 W | 60 W |
| Dynamic power | 35 W | 65 W |
| SNR (1%THD) | > 90 dB | > 90 dB |
| THD+N @ -6dB | < 0.5 % | < 0.5 % |
| Cooling | convection | |
| Amplifier protection | temperature, overcurrent, overvoltage, undervoltage | |
| PRE-out | | |
| Nominal output level | 0 dBV | 0 dBV |
| Power supply | | |
| Max power consumption | 60 W | 100 W |
| Idle power consumption | 4.5 W | 4.5 W |
| Standby power consumption | 0.5 W | 0.5 W |
| Power supply | 100 V - 240 VAC (+-10 %) / 50-60 Hz | |
| Mains fuse value | 1 AL | 1.6 AL |
| Standby | | |
| Input trigger sensitivity to wake up | | |
| Line 1 - 2 | -44 dBV (6 mVrms +-10%) | |
| Mic A, RCA | -46 dBV (5 mVrms +-10%) | |
| Mic A, Balanced (mic) (vox off) | -70 dBV (0.3 mVrms +-10%) | |
| Time to auto standby | 10 min | |
| General | | |
| Dimensions amplifier (l x d x h) | 21.6 x 25 x 8.9 cm | 21.6 x 25 x 8.9 cm |
| Weight amplifier | 2.4 kg | 2.6 kg |
| Accessories | power cable, manual, euroblock connectors, sticker paper, feet | |

developed
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