

MA30 - MA60
Instruction manual

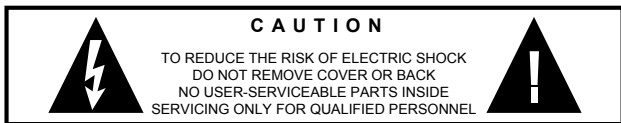
MA30 - MA60 manual



Safety instructions

- Caution! This professional device needs to be installed by qualified personnel only.
- Please check the carton box for any kind of damage on reception of the goods. In case of a damaged carton, please contact your dealer before opening the carton.
- !!!! 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.
- Read all documentation before operating your equipment.
- Keep all documentation for future reference.
- Save the carton and packing material even if the equipment has arrived in good condition.
- Should you ever need to ship the unit, use only the original factory packing.
- Do not spill water or other liquids into or on the unit.
- Make sure power outlets conform to the power requirements listed on the back of the unit.
- Do not use the unit if the electrical power cord is frayed or broken.
- Always operate the unit with the AC ground wire connected to the electrical system ground.

- 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.
- Power down & disconnect units from mains voltage before making connections.
- Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
- Do not operate equipment on a surface or in an environment which may distort the normal flow of air around the unit. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically "blown free" of dust.
- Do not remove the cover. Removing the cover will expose you to potentially dangerous volt-ages.
- 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.
- In case of mal-function this device should be serviced by qualified service personnel only.
- This unit has NOT been designed for use in mobile applications, such as: mobile discobars, mobile PA systems, live bands, audio rental systems, ...

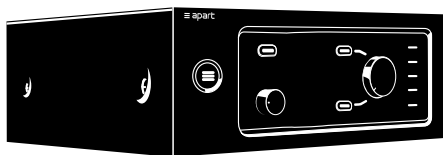


Introduction

“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.

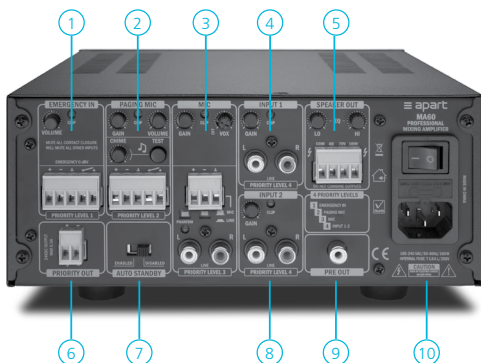
What you see is what you get, but there is more: the refreshing rear panel will give every installer an instant gratification due to the sheer and logic design.

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.

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 40°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:

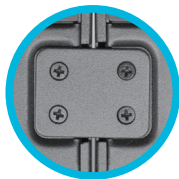
- Short screws: used for the bottom connection plates
- Long screws: used to attach the rack ears
- The rear connection plates are mounted with the original rear panhead screws
- If necessary, remove the rubber feet

Connect two units with the provided connection plates and screws.

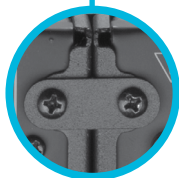


Turn devices upside down

2x

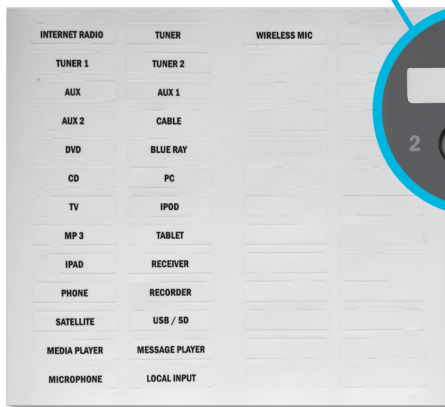


2x



Input labels

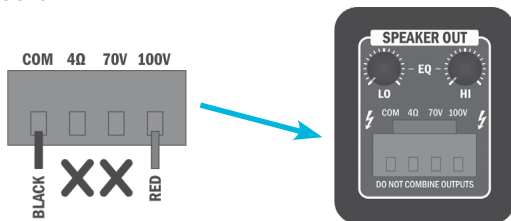
Use the sticker paper included in the box to attach labels to the front panel inputs. The blank labels can be personalised.



Practical examples

a. Connecting the speakers

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



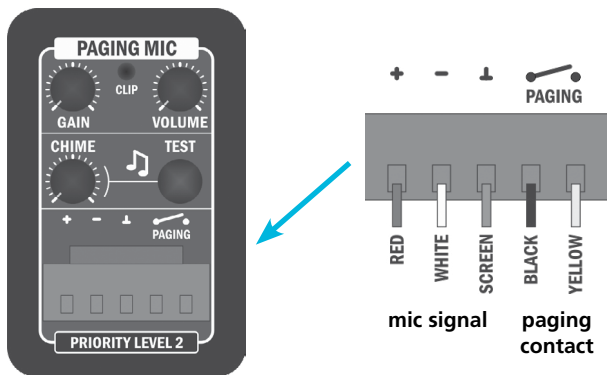
The 4 ohm and 70 volt connectors are not used. Connect the common or speaker line ground wire to the COM connector. Connect the 100 volt line to the 100 volt connector. The minimum speaker line impedance is 333 ohms (MA30) and 167 ohms (MA60). Check the impedance with an impedance meter before connecting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

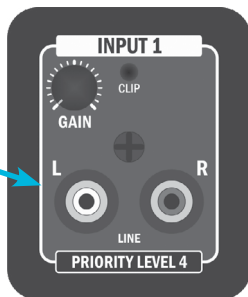


Note: the paging mic and chime levels are independent from the position of the big volume control on the front of the unit.

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)	-50 dBV (3 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)	-50 dBV (3 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	

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