APart MIXING AMPLIFIERS

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APart MIXING AMPLIFIERS

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MA125

OWNER'S MANUAL

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SAFETY INFORMATION

The **MA125** is a very compact, professional PA mixing amplifier for commercial and industrial applications. All microphone inputs have integrated speech filters. He's able to drive 8-ohm or constant-voltage loudspeaker lines (50-70-100V).
The amplifier has 4 microphone, 4 selectable line inputs and one emergency/telephone input.
Mic input 1 is meant to be the main microphone paging input, for its signal can be fed via the front ¼" TRS phone jack or via a XLR3, DIN 5 or euro block connector at the back. When needed, two APart paging microphones can be wired in parallel on each mic input!
The MA125 has a *three level priority system*. The emergency/telephone input at the back has the highest priority. Its signal goes directly to the main amplifier, bypassing any front control, and an attenuator next to the input sets its level. Microphone input 1 has the second priority level. With the control next to the DIN5 input, the vox (voice activated) mute for microphone 1 can be activated and mutes all other signals, except the emergency input. The third level can be activated via a dry contact ("priority over music") and mutes all background music inputs only. This contact activates the chime as well, only when a level has been set using the "chime level" potentiometer.

When the priority contact has been activated, 24V DC (max.0,6A) will be available to activate priority relays of loudspeaker attenuators or other devices.

When needed, the signals mixed via your MA125 mixing amplifier, can be recorded or distributed via the record output.

19" Brackets are shipped along with your amplifier.

The **MA125** is *the* device to built professional industrial sound applications. You can insert an extra equalizer (such as the APart PXQ2215) into the signal path or add extra power amps (APart PA240P), using the pre amp out/power amp in RCA connectors. When shipped a RCA bridge has been inserted.

The **MA125** complies with the CE standards.

Important Safety Instructions

Before using your **MA125**, take a few minutes to read these instructions carefully. This little time can avoid a lot of headaches afterwards.

1. Keep this manual for future reference.
2. Water and humidity are the biggest enemies of electric equipment. Operating it under moist conditions can even be dangerous.
3. Clean only with dry cloth.
4. Do not operate near heaters or place it on other apparatus which produce a lot of heat.
5. Be sure your unit is always connected to the electrical safety earth. Do not defeat the safety purpose of a grounding- type plug. If you have any doubt, please consult your dealer or a qualified technician.
6. Take care for the power cord. Never use a damaged power cord and install it in such a way that no one can walk on it.
7. Only use accessories specified by the manufacturer.
8. Distorted sound indicates that operating conditions are bad. Decrease the volume, check the speakers and sources connected, or switch off the unit.
9. Disconnect the unit from the mains power supply, when you do not use it for a longer period.
10. When smoke ore bad smell comes from your MA125, switch off immediately and disconnect from mains.
11. This apparatus should only be serviced by qualified personnel. If not, the warranty might be void.
12. Do not remove the cover panel. Removal of the cover will expose hazardous voltages.
13. Do not block the air inlets of the amplifier and see that sufficient cool air can be supplied.
14. Please check the units' condition after unpacking. If the outside of the carton box has been damaged, inform your shipper immediately.
15. ***Check all speaker lines for load charge (by APart wattmeter WM100) and short circuits, before connecting them to your amplifiers!***

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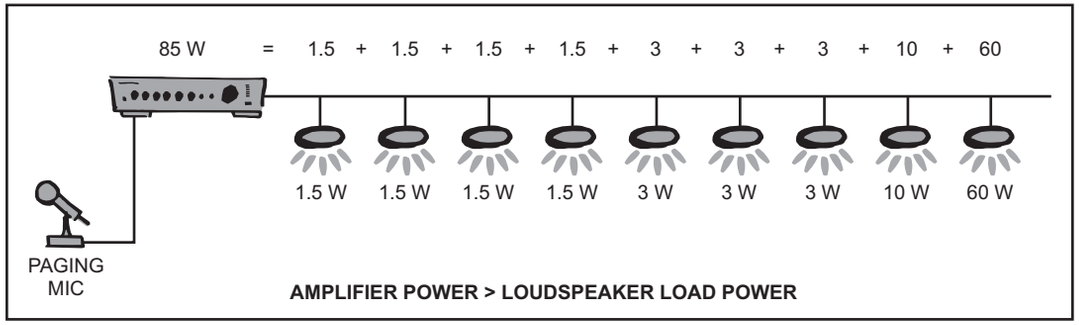
Technical Specifications

General	
Mains voltage	230/115 VAC or 24VDC
Rated output	125W RMS
Frequency response	40Hz 22kHz (+1/-3 dB)
Distortion	<0,5% @ -6dB, 1kHz
Bass control	+/- 10dB, 100 Hz
Treble control	+/- 10dB, 10 kHz
S/N	amplifier: better than 95dB
	line: better than 81dB
	mic: better than 70dB
LED indicators	limiter active, red
	signal 100%, yellow
	signal -25 dB, green
	power on, green
	protection active, red
Muted by priority LED	any of the priority modes active, red
Weight	approx.9 kg
Dimensions	430(W) x 102(H) x 230(D) mm, desktop mounted
	19" wide, 2U high,
	rack mounted (height = 88mm)

Inputs	
Mic input 1; ¼" TRS phone jack at the front; XLR3, DIN5; Euro block	
Sensitivity	1,5 mV
Impedance	600 Ω
S/N (at max. volume)	> 70 dB
Phantom power	14 V
Frequency response	> 90Hz-> 15Khz (+1/-3 dB); speech filter
Vox mute	trigger level 0,6 mV, 1Khz, mutes mic 2,3,4+music, > 40 dB
Mic input 2,3 & 4: XLR3 balanced	
Sensitivity	1,5 mV
Impedance	600 Ω
S/N (at max. volume)	> 70 dB
Phantom power	14 V
Frequency response	> 90Hz-> 15Khz (+1/-3 dB); speech filter
Emergency input; euro block	
Sensitivity	1 V
Impedance	600 Ω
S/N (at max. volume)	> 85 dB
Frequency response	> 90Hz-> 20Khz (+1/-3 dB);
Mute	mutes all, > 40 dB
Aux input; RCA	
Sensitivity	500 mV (-6 dB)
Impedance	22 kΩ
S/N (at max. volume)	> 81 dB
Frequency response	> 50Hz-> 20Khz (+1/-3 dB)
Line 4; RCA	
Sensitivity	200 mV (-14 dB)
Impedance	47 kΩ
S/N (at max. volume)	> 81 dB
Frequency response	> 50Hz-> 20Khz (+1/-3 dB)
CD in	
Sensitivity	500 mV (-6 dB)
Impedance	30 kΩ
S/N (at max. volume)	> 81 dB
Frequency response	> 50Hz-> 20Khz (+1/-3 dB)
Tuner	
Sensitivity	300 mV (-10 dB)
Impedance	30 kΩ
S/N (at max. volume)	> 81 dB
Frequency response	> 50Hz-> 20Khz (+1/-3 dB)

Outputs		
Speaker zone output, euro block		
High Z zone		100V
Speaker out; euro block		
High Z		50 (20 Ω) 70 (39,2 Ω) 100V (80 Ω)
Low Z		8 Ω
Phantom power		
Mic 1-2-3-4		14V; on / off switch
Pre amp out		
Level		1V
Record out; RCA mono		
Level		1V
Priority out		
Level		24 V DC; max 0,6A, short circuit protected
Chime		2 tone
		activated by contact closure
		on/off and level set by trimmer
Priority		
		Emergency input / Telephone
	I	200 mV; 1 kHz
		mutes all other signals
		> 40 dB
		Vox mute only for mic 1
	II	0,6 mV; 1 kHz
		mutes mic 2,3 & 4 + music
		on/off/level set by trimmer
		> 40 dB
	III	Priority contact
		> 40 dB
		mutes all music inputs

How to deal with 100V loudspeaker systems



In fact working with 100V loudspeakers is rather simple, when done in the right way.
Each 100V loudspeaker has a 100V transformer which can be set to a certain power, for example: 1,5 3 or 6W. As the example shows, the sum of all loudspeaker settings should never exceed the amplifier's power specifications.
Never use low impedance (= 8 ohm) loudspeakers on a 100Volt system, even not one.

More technically: When your paging amp has a maximum output of 125 watts at 100V, this means that the minimum impedance connecte d should be at least 80 ohm (100x100/125).
To check your loudspeaker lines use a decent **impedance** checker (example AP WM100).

Now you are ready to get the best result on distributing your music and messages to your audience.
Your little giant is like a Swiss knife which will astonish you and many others!

Troubleshooting

No power: Check whether the "on/off" switch is in the *on* position and whether the power cord has been inserted properly. If these two have been checked and still the MA125 remains off, the fuse might be blown.

No sound: Check all the wires and loudspeaker selectors. At least the master and one source should be turned clockwise. Check whether the pre amp out is connected to the power amp in. In the worst case your MA125 is in protective mode. Please check your loudspeaker wiring and loads. Operate your MA125 within normal conditions.

Distorted sound: Your input signal is too high. Haven't you a line level source connected to a microphone inputΩ You might also be drawing too much power from your MA125 and the loudspeaker load might be too low (minimum 80 ohm for 100V use).
Check the speaker wiring and load with an impedance tester. Turn down the master level.

Hum and buzz: Please check your wiring and grounding, maybe you created a ground loop. See that all equipment linked are drawing power from the same power supply. Your radio might get its signal from the cable radio. In this case you have created a ground loop and a ground loop isolator between the cable signal and your radio antenna input will be the solution.

Any suggestion?

They are well appreciated and eventually rewarded!
Send your ideas or suggestions to

suggestion@apart-audio.com.

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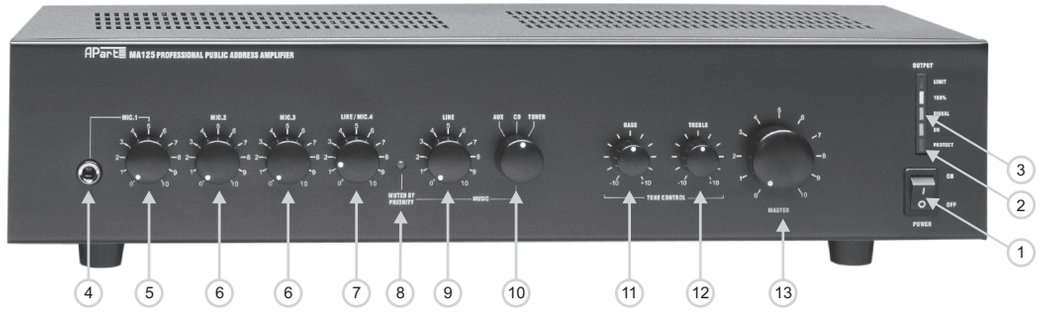
Front panel



1. Power switch Turns mains power on and off.

2. Protect indicator This red LED illuminates when one of the protections have been activated. No or distorted sound will be heard anymore. This will be in case of overheating being the result of drawing too much power from your amplifier or the impedance of the speaker lines connected are below the minimum load impedance (see 17).

3. Level indicators/clip-limit A green LED will light after powering on. To work within normal conditions the volume indicator should be kept under 0dB (100%). At -2,5dB a limiter will be activated. This red LED indicates that the "auto gain circuit" keeps the level below clipping. This is NOT a clip indicator, but an indication of the "automatic gain control".

4. Microphone 1 input This balanced ¼" TRS phone jack has been wired in parallel with the other three input options for microphone 1 at the back.
For normal operation, use only one input at the time for microphone 1, but when useful two microphone inputs of mic 1 can be used together (see note below). Microphone 1 can be given a priority over all the other inputs, except the emergency input (see 20), by using the VOX priority (see 30).

5. Microphone 1 level control Adjusts the volume of the microphone connected to one of the four input connectors (1/4" jack, XLR3, DIN5 or euro block).

6. Microphone 2 3 level control By turning each control clockwise the desired level of that input in the total mix is set. To decrease these levels, turn counter-clockwise. The volumes of the inputs not used (open lines), should be set fully counter-clockwise. If not, hiss might occur.

7. Microphone 4 / line 4 level control Adjusts the input signal of the microphone connected to the XLR3 input at the back or the line source connected to stereo RCA input 4 (for example a wireless microphone, see 27).

8. "Muted by priority" led This red led will blink when any priority status has been activated (see also 18).

9. Music level control Here you can adjust the level of the line source selected.

10. Line source selector Select the desired music source to be heard (AUX, CD or TUNER).

11. Bass control Adjust as per your taste. In reverberant rooms intelligibility can be increased by decreasing bass. The centre position gives you a flat response.

12. Treble control Adjust the level as per your taste or needs. Adding high frequencies gives brilliance to your sound. High frequency feedback can be removed by decreasing treble. The centre position gives you a flat response.

13. Master level control Here you can adjust the desired volume of the overall signal.

Important notice: 2x4 = Eight microphones possible!

When you use more than one microphone input at the time, in super markets for instance, it is important to use real paging microphones (APart MICPAT; MICPACB). These microphones maintain the microphone input impedance when not switched on. This avoids unwanted noise to come out of your loudspeakers. APart MA mixing amplifiers accept two APart microphones wired in parallel on each mic input at the time, which can be a very useful tool.

Back panel

14. Voltage selector Set the local voltage. If any doubt, contact your dealer. The unit is shipped with the selector set to 230VAC.

15. Mains socket The unit can be connected to the mains circuit by a standard IEC type power cord. This socket contains a 2,5AT, slow blow fuse. Use a screw driver to flip out the fuse compartment and to replace it by the same type. When this fuse blows frequently you should check the speaker load or bring the **MA125** to a qualified service centre. First check whether you didn't use a quick-blow fuse!

16. Emergency power supply You can power the amplifier directly from an emergency battery or power supply supplying 24V DC/15A.

17. Loudspeaker outputs For low impedance use com and 8Ω. Keep impedance above 8 Ω.
For 50, 70 or 100V speaker lines use COM and 50, 70 or 100V terminals.
For 100V operation, the total minimum impedance of the loudspeaker lines should be 80 Ω. For 70V operation the minimum impedance should be 40 Ω and for 50V 20 ohm.
Don't mix the types of speaker connections. Only one at the time should be used, unless you are able to calculate a combination which does not overcharge the amplifier (example: 160Ω at 100V for a loud zone in combination with 40Ω at 50V for a quiet zone).

18. 24V DC output At this terminals (-/+) 24V DC will be available (max. 0,6A) from the moment any priority has been activated, to control priority relays of local volume attenuators or other devices.

19. Emergency / telephone level With this potentiometer you can set the desired level of the line level signal inserted into the priority signal input 20. This level will not be influenced by the “master” level.

20. Emergency / telephone input Here you can feed the audio source for paging emergency messages, etc.. This input, at line level, has automatic activation above 200mV and has a line transformer to avoid ground loops (useful for telephone). Please use a balanced, shielded line cable. Connect the HOT signal to +, the COLD to - and the shield to G (when connecting the shield only at the MA125 side, you might avoid a ground loop, which creates hum and buzz).
This signal is directly fed into the main amplifier.
No microphones should be connected directly to this input without using a mic to line pre-amplifier.

21. Priority over music contact By closing the contact of the euro block connector or pins 4 and 5 of the DIN5 connector, the signal of microphones 1 to 4 have priority over the music sources (TUNER, CD and AUX). So, the contact closure of the contacts mentioned can give priority to the other microphone inputs as well. At the same time 24 V DC will be available at terminal 18. This is very useful when using several microphones in supermarkets, etc…

22. Chime level When one of the priority contacts are closed a chime can be activated by turning this trimmer clockwise to the desired chime level. When you don't need a chime, turn this control fully counter-clockwise to the “OFF” position.

23. Power amp in / pre amp out You can send the signal of the pre-amplifier to an external device such as an equalizer (APart PXQ2215) or processor and feed the treated signal back into the amplifier via the power amp input. From the ”pre-amplifier out” you can also feed extra power amplifiers such as the APart PA240P. When you don't use this feature, the RCA bridge should be placed.

24. Aux. mono Here you can feed the signal of an external mono music source.

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25. Rec. out When you need a copy of the total mix, you can connect this output to any recording device such as tape deck, MD recorder, VHS recorder, etc….You can also use this output to feed an extra amplifier. This output level cannot be controlled separately. When you connect your **MA125** pre-amp out or record out to a microphone input of another mixing amplifier, this input will have signal overload and the sound will be masked. In this case you should use a line input, a DI-box or other signal levelling device. Never connect this output to an amplifier loudspeaker output!

26. CD input (300mV) Use these stereo RCA inputs to connect a line level source such as CD players, MD players, etc…. You have to make your choice with the selector at the front (see 10). Stereo signals will be summed together to mono.

27. TUNER input (500mV) Use these stereo RCA inputs to connect a line level source such as a TUNER
You have to make your choice with the selector at the front (see 10). Stereo signals will be summed together to mono.

28. Line 4 / Mic4 input Use only one of these parallel wired inputs at the time! To the XLR3 balanced input you can connect any microphone using a balanced, two wire shielded, cable. (1=earth / 2 =hot / 3=cold). For using condenser microphones see 32. The Microphone 4 input is a XLR3 jack, which will accept a normal XLR3 male plug.
Line 4 is more sensitive than the other line (music) inputs, therefore ideal to connect wireless microphone receivers.

29. Mic 2, 3 & Mic 4 XLR + jack input To the XLR, or parallel wired stereo jack, balanced input you can connect any microphone using a balanced, two wire shielded, cable. (1 or sleeve = earth / 2 or tip = hot / 3 or ring = cold). For using condenser microphones see 32.

30. Mic 1 XLR / DIN5 / Euro block Use max. two of these parallel wired balanced inputs at the time! See wiring diagram at the back. These three inputs have been wired in parallel with the balanced jack input at the front. When you use the APart MICPAT or MICPACB paging microphones, connected directly to the DIN5 input, the signals fed into the line inputs are muted automatically while paging. The same kind of connection can be made using the euro block connector. To use “vox mute” see 30.

Phantom power to use condenser microphones see 33

31. Vox mutes all When you activate “vox mute” by turning this trimmer clockwise to the desired threshold level, the signal of any Mic1 input has priority over all other inputs (except emergency). When you don't need “vox mute”, turn this trimmer fully counter-clockwise to the “OFF” position.

32. Airflow output This airflow output should be kept free at all times !
Keep sufficient room on top and the two sides of your MA125.

33. Phantom on/off When you switch to the ON position, phantom power will be supplied to the microphone input involved, so you can use condenser microphones. In this case ***NO*** unbalanced jacks should be used! Phantom power does not damage dynamic balanced microphones.

MA125 inside controls

Inside settings should only be done by persons familiar to electrical equipment!

Power supply fuse (inside the housing)
When this fuse blows, replace it by the same type: 15A quick blow. When this happens frequently, contact your nearest dealer.

Now you are ready to build your solid sound system and *our extra features will be of great help*.

Note: In our policy of continuous improvement, changes can appear without prior notice, including the user manual.