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Sounds like the right choice

MA35-65
Instruction manual

MA35 & MA65


apart
MA35
MIXING AMPLIFIER
MIC 1
MIC 2
MIC/LINE 3
LINE 4
MIC 1
MIC / LINE INPUTS
TREBLE
BASS
TONE CONTROL
STATUS
ON
OFF
POWER


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Safety First !

- Caution: This professional device needs to be installed by qualified personnel only.
- Caution: speaker and power wires must be compliant with your local low Voltage directive.
- 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.
- Set level controls on amplifiers all the way down during power-up to prevent speaker damage if there are high signal levels at the inputs.
- 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 Voltages.
- 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.

Features

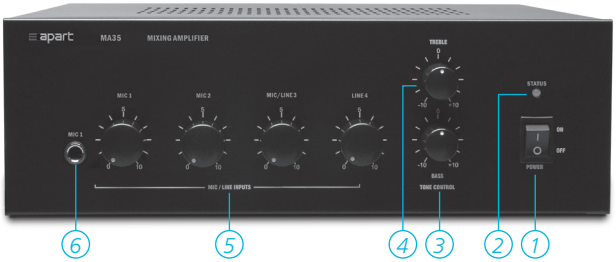
MA35/65 is a very compact, extremely versatile 100 Volt mixing amplifier, with three balanced microphone inputs with integrated speech filters, paging priority switch, vox circuitry, built-in ding dong chime and two line inputs on rca connectors. Stereo line inputs are internally mixed to mono. Alternatively, you can connect your mono sources to the left or right rca line in. MA35/65 have mains power and emergency power connectors. MA35 can be emergency powered from 12VDC power sources such as car batteries. MA65 can be emergency powered from industry standard 24VDC supplies. Please note that the output level may vary up to 3 dB when the emergency supply is in use.

For easy plug and play applications, use our MICPAT-D on mic input 1. It is possible to connect 2 pieces of MICPAT-D on mic 1 input.

Wiring and Installation

Please note that MA35/65 is capable of generating hazardous Voltages at the speaker outputs. All wiring should be done by a qualified technician according to your local regulations. Always turn off the power and disconnect the mains power cable during maintenance or installation. For use in a 19 inch rack, you can use the optional MA35/19 bracket, compatible with MA35 and MA65. When installing the mixing amplifier, make sure the unit's top, bottom and sides are not covered by other units. Allow some free airflow around the unit and keep all ventilation holes free from obstructions and dust!

Operation



1. Power switch: flip the switch to turn the mains power on and off. This switch has no influence on the emergency power supply.

2. Power/status indicator: the led lights up green when mains or emergency power is present. When the led blinks red, you are reaching the power limits and the limiter will be activated. Make sure the led never turns red. Reduce the levels if necessary, or insert a dedicated compressor/limiter/leveler in the signal path, especially when using paging microphones.

3. Bass tone control: center position corresponds to a flat response. Turn left to decrease low frequency response, turn right to boost low frequencies.

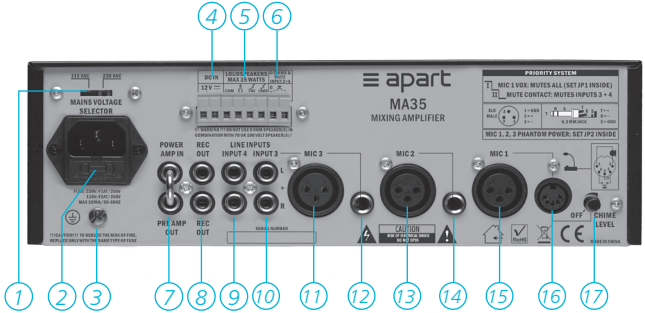
4. Treble tone control: center position corresponds to a flat response. Turn left to decrease high frequency response, turn right to boost high frequencies.

5. Mic/line levels: these rotary controls act as volume controls.

Since this is a mixing amplifier, the inputs are all mixed together, the output level of each input is determined by the position of these controls. The controls of inputs not in use should be set to the 0 position to avoid excessive noise.

6. Mic 1 input: balanced microphone input on 6.3 mm TRS jack. This connector is internally hardwired to the rear microphone 1 XLR and DIN5 connector. Use only one of these connectors. Microphone 1 can have priority over all other inputs (including the microphone 2 and 3 inputs) by activating the vox circuit. When the paging contact is used, only the line inputs (music) will be muted. Caution: do not connect an unbalanced microphone to the balanced TRS or XLR connector when phantom power is activated. This will result in a short circuit on the phantom power supply.

Connections



1. Mains Voltage selector: to set the local Voltage. In case of doubt, contact your dealer.

2. Mains socket/fuse holder: connect the IEC type power cord here. The socket has an integrated 5 x 20 mm fuse holder. Replace the fuse only with the same type and size. When the fuse blows often, contact your nearest dealer.

3. Ground terminal: connect the ground of your audio cables here if required. If hum occurs, use a ground loop isolator instead.

4. Emergency power supply connector: connect the emergency DC supply here. 12 VDC for MA35, 24 VDC for MA65. Please note that the output level may vary up to 3 dB when the emergency supply is in use.

5. Speaker output: only one type of output can be used: 8 Ohms or 70 Volt or 100 Volt. COM is the speaker ground or common connection for all types of speakers. Maximum output power is

35 Watts (MA35) or 65 Watts (MA65). In 100 Volt this results in a minimum load impedance of 286 Ohms (MA35) or 154 Ohms (MA65). The low impedance output (8 Ohms) requires a load of 8 to 16 Ohms. Never use more than one output simultaneously. This will result in continuous overloads and will cause excessive heat dissipation.

6. Chime and mute contact terminals: by shorting these terminals, the chime will sound (first turn the chime level control to set the loudness of the chime) and music will be muted. Never apply any foreign Voltage to these terminals, in other words: only connect potential free or "dry" contacts such as push buttons or relay contacts.

7. Pre-amp out / amp in: if necessary, you can send the signal of the preamplifier to an external device such as an equalizer or compressor/limiter/leveller and feed the treated signal back into the amplifier via the poweramp input. When you don't use this feature, the RCA bridge must be placed, or no sound will be heard.

8. REC out: To record paging messages etc, connect this output to any recording device with line level input, or connect to another power/mixing amplifier.

9. Line input 4: stereo RCA input for line level signals from tuners, CD players… The left and right signals are internally mixed to a mono signal. You can also connect a mono source to the left and/or right channel input.

10. Line input 3: stereo RCA input for line level signals from tuners, CD players… The left and right signals are internally mixed to a mono signal. You can also connect a mono source to the left and/or right channel input. This input is internally hardwired to microphone input 3. Use only one of these inputs at the time.

11. Microphone 3 input on XLR: balanced microphone level input with optional phantom power supply. This input is internally hardwired to the MIC 3 TRS jack input (12) and to line input 3 (10). Use only one of these inputs at the time. Do not connect an unbalanced signal to the XLR connector when phantom power is present, this will result in a short circuit of the phantom power supply.

12. Microphone 3 input on 6.3 mm TRS jack: balanced microphone level input with optional phantom power supply. This input is internally hardwired to the MIC 3 XLR jack input (11) and to line input 3 (10). Use only one of these inputs at the time. Do not connect an unbalanced signal to the 6.3 mm TRS jack connector when phantom power is present, this will result in a short circuit of the phantom power supply.

13. Microphone 2 input on XLR: balanced microphone level input with optional phantom power supply. This input is internally hardwired to the MIC 2 TRS jack input (14). Use only one of these inputs at the time. Do not connect an unbalanced signal to the XLR connector when phantom power is present, this will result in a short circuit of the phantom power supply.

14. Microphone 2 input on 6.3 mm TRS jack: balanced microphone level input with optional phantom power supply. This input is internally hardwired to the MIC 2 XLR jack input (13). Use only one of these inputs at the time. Do not connect an unbalanced signal to the 6.3 mm TRS jack connector when phantom power is present, this will result in a short circuit of the phantom power supply.

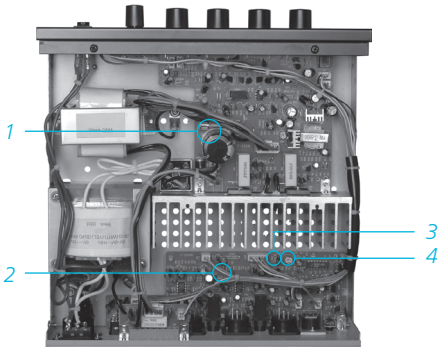
15. Microphone 1 input on XLR: balanced microphone level input with optional phantom power supply. This input is internally hardwired to the MIC 1 DIN5 jack input (16) and the MIC 1 connector on the front panel of the unit. Use only one of these

inputs at the time. Do not connect an unbalanced signal to the XLR connector when phantom power is present, this will result in a short circuit of the phantom power supply.

16. Microphone 1 input on DIN5: balanced microphone level input. This input is internally hardwired to the MIC 1 XLR jack input (15) and the MIC 1 connector on the front panel of the unit. Use only one of these inputs at the time. The DIN5 wiring diagram is shown on the back of the unit and is compatible with our MICPAT-D and MICPACB-D microphones. MICPAT-D and MICPACB-D require no phantom power !

17. Chime level control: when the chime/mute contact of microphone 1 is closed, the chime will sound. Set its level with this control.

MA35/65 internal jumpers/controls



1. DC Power supply fuse: replace only with the same type and size: for MA35: 6.3A quick acting, for MA65: 8A quick acting. This fuse offers additional protection for the emergency power supply and the internal power supply. Replace only with the same type of fuse: 6.35 x 30 mm, F6.3AF/250V for MA35 or F8AF/250V for MA65.

2. Phantom power on/off jumper: setting the jumper to the on position applies phantom power to all mics on the XLR and TRS jack connectors. Do not use TS connectors or other unbalanced microphones or balanced to unbalanced cable adapters when phantom power is on. Never hot plug a phantom powered microphone, this may result in damage of the unit's electronic circuits. Before unplugging a phantom powered microphone: power off the amplifier and all other devices in the audio chain and wait a minute. Default position of the jumper = off.

3. Vox mute on/off jumper: The MA35/65 has been shipped with

this jumper in the OFF position. When you set this jumper to the ON position, voice activated muting (vox) will be available on microphone input 1. This muting system overrides the mute activated by the chime/mute contacts. This way a two level priority system is available. The level at which voice activated muting starts is to be set by the internal vox sensitivity attenuator (4) .

4. Vox sensitivity level: this attenuator sets the audio level at which vox muting starts for microphone 1. This is only possible when the vox on/off jumper (3) is set to the ON position. You have to adjust this level carefully; otherwise background noise picked up by your microphone or microphone cable might activate the vox mute, causing unwanted interruptions of the music signals.

NOTE: Internal jumpers/controls should only be operated by qualified personnel. Warning: risk of electric shock! By opening the cover of the unit, you will be exposed to hazardous Voltages.

Less Ohms is more Watts: working with 100 Volt loudspeakers and amplifiers is very easy. Consider a 100 Volt speaker line as a high Voltage power line: "transporting" amplified sound over a long distance, using relatively thin cables, with multiple speakers wired in parallel, using local speaker line volume controls... Every 100 Volt speaker in the chain has a 100 Volt transformer which transforms the high Voltage back into a normal speaker level. The transformer and speaker act as one and represent a certain load for the 100 Volt amplifier. The load is expressed in Watts allowing easy calculations in terms of 1 + 1 = 2. A simple calculation rule reveals the equivalent power in Watts @ 100 Volt once the load impedance is known: power @ 100 V = (100 V x 100 V) / impedance. The sum off all speakers in Watts must be smaller than or equal to the output power of the 100 Volt amplifier. If you exceed the number

of Watts connected to your 100 Volt amp, the amp will "see" a load that he cannot handle properly. The amplifier will become very warm, overheat, shut down and eventually fail.

Choose wisely: a 35 watt 100 Volt amplifier can handle a speaker load of 35 Watts, equivalent to 286 Ohms. This is calculated as follows: (100 Volt x 100 Volt) / 35 Watts = 285.7 or 286 Ohms. If the total impedance of all speakers is lower than 286 Ohms, the amplifier will be overloaded. For example: the measured impedance of all speakers = 200 Ohms. The amplifier will see a load of (100 Volt x 100 Volt) / 200 = 50 Watts. This is too much for the 35 watt amplifier. There will be sound, but the amplifier will become very hot. A 65 watt 100 Volt amplifier such as the MA65 sounds like the right choice in this case.

To measure the total load a chain of 100 Volt speakers represents, you need a dedicated impedance meter such as the Apart IMPMET. Measuring speaker impedance is not possible with a standard multi-meter because an ohmmeter measures resistance, using a DC Voltage or something similar. An impedance meter measures impedance, using a carefully tuned AC Voltage with a certain frequency. Before connecting a number of 100 Volt speakers to your amplifier, measure the impedance, not the resistance, of all speakers including all wiring, volume controls... and make sure the total load the chain represents is within the limits the amplifier can handle. If you have included local volume controls in the 100 Volt speaker line, double check if you haven't swapped the ins and outs of the volume controls, because that causes hard to find short circuits in the speaker line. Always set the volume controls to the maximum position if you want to measure a 100 Volt speaker line. And last but not least: disconnect the speaker line from the amplifier before you attempt to measure the line. Never ever use standard low impedance speakers on a 100 Volt line. An 8 ohm speaker would represent a load of (100V x 100V) / 8 ohm = 1250 Watts.

The Apart IMPMET is a dedicated speaker impedance meter.

Specifications

General	
Mains Voltage	230/115 VAC
AC supply frequency	50-60 Hz
Emergency supply	12 VDC (24 VDC)
Mains fuse rating 230 VAC	F1 AT / 250 V (F1.6 AT / 250 V)
Mains fuse rating 115 VAC	F2 AT / 250 V (F3.15 AT / 250 V)
DC emergency supply fuse	F6.3 AF / 250 V (F8 AF / 250 V)
Output power @ 100 Volts	35 Watts RMS (65 Watts RMS)
Frequency response amp in	20 Hz – 20 kHz +- 3 dB
S/N ratio amp in	>90 dB
Bass tone control	100 Hz +- 10 dB
Treble tone control	10 kHz +- 10 dB
THD	< 0.5 % @ full output -6 dB
Limiter	Dynamic limiter with slow release, threshold at -3 dB of max output
Led indicator	Power on: green/limiter active or overload: red
Chime	2 tone chime with adjustable level (ding dong) activated by contact closure
Priority levels	2 step priority mute: I: VOX on mic 1 mutes mic 2-3 and all line inputs II: contact closure mutes music

Muting circuit	>40 dB
Operating temperature	-10 to +45 °C
Relative humidity	10% - 90% non condensing
Dimensions H x W x D	88 (102 including feet) x 272 x 286 mm
Net weight	4.75 kg (5.9 kg)
Standard Accessories	User manual, power cable
Optional accessories	MA35/19 (19 inch mounting brackets) MICPAT-D, MICPACB-D (paging microphone)
Inputs	
MIC1	1 mV/600 ohms (balanced XLR, TRS, DIN5), speech optimized filter
MIC2	1 mV/600 ohms (balanced XLR, TRS), speech optimized filter
MIC3/LINE3	1 mV/600 ohms (balanced XLR,TRS), 300 mV/47 kohm (RCA), speech optimized filter
MIC 1-3 speech filter	lo-cut @ 90 Hz
LINE4	300 mV / 15 kOhm
Amp in	1V (RCA)
S/N ratio mic	>67 dB
S/N ratio line inputs	>77 dB
Outputs	
Pre Amp out	1V (RCA)
Record Out	350 mV (RCA)
Phantom power mic 1-2-3	approx 12-18 VDC

Power amp	70 V, 100 V, Lo-Z (8-16 Ohm)
Chime	2 tone (ding dong) activated by contact closure, adjustable chime level (off-max)

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