



PUBLIC ADDRESS SERIES

PROFESSIONAL AUTOMATIC MIXER



AMA 3150



AMA 3250



AM 3000



AM 3008

Owner's Manual



PUBLIC ADDRESS SERIES

PROFESSIONAL AUTOMATIC MIXERS

AMA 3150 – AMA 3250 – AM 3000 – AM 3008

PRODUCT DESCRIPTION

Automatic mixer considerably improves the audio quality in all that applications of voice survey in which more microphones are used. Softening microphones when they are not in use, an automatic mixer helps to minimize background noise and reverberation, supplying a clearer and more intelligible audio.

The mixer only starts relevant microphones in just 4 thousandths of a second.

Moreover, there is no need of specific microphones: mixer works with any kind of microphone or professional radio microphone. XLR connectors make microphone connection quick and simple.

The starting threshold is automatically.

These features guarantee that the undesired background noise would be at minimum and that the speaker voice instantly starts one microphone only.

When more than 8 microphones are necessary the Automatic Mixer Expansion AM 3008 is used.

It is connected to amplified mixer and mixer's connector (LINK IN) by the special cable supplied with the equipment (Patch cord CAT 5 FTP 8 pin whit TJ45).

The Expansion has 8 electronically balanced micro phonics inputs.

With the possibility to connect up to 2 expansions in cascade, could have a max of 24 micro phonics inputs available.

This unit is therefore the extension of AMA 3150, AMA 3250 and AM 3000 units of which it maintains the main features, advanced functions and possibility of internal modifies. (see under Main Features and Installation)

MAIN FEATURES

AMA 3150, AMA 3250, AM 3000 and AM 3008 is equipped with a whole of features, which help, in adapting mixer to particular applications.

- 8 electronically balanced microphone/line inputs (internal setting) characterized by:
 - a. *3 band adjustable equalizer for each micro phonic channel*
 - b. *Led for channel activation indication*
 - c. *Led for channel overload indication*
 - d. *Channel Gain control*
 - e. *Arrangement to insert transformer balance (optional)*
 - f. *48 V phantom supply for each micro phonic channel*
 - g. *High-pass filter which could be excluded*
- 2 selectable CD/TAPE inputs with volume control, treble and bass tunes
- 10-band main equalizer on microphone, which could be excluded
- Main level indicator
- Main Master volume
- Input/output for external effect (antilarsen, etc.)
- Radio frequency-immune components and chassis.
- The whole electronic circulation has quality and safety features in working; it has an "earth-lift" switch (on the back).



- INTERNAL MODIFIES for particular functions:
 - a. Locked priority assignation to one or more microphones.
 - b. Exclusion possibility of MUTE and priority functions, for each input independently.
 - c. TAPE output whit direct inputs signal or post master selection.

- ADVANCED FUNCTIONS for flexible applications:
 - a. PRE OUT output (internal setting) could supplies the signal pre/post MASTER control and pre/post equalizer.
 - b. Audio power outputs for loudspeakers are arranged for connection to constant voltage lines 50V, 70V, 100V and/or to constant impedance lines 4ohm.
 - c. Selection of 4 output lines of loudspeakers
 - d. Input (LINK IN) to connect up to 2 microphones expansions. TOTAL EXTENTION CAPABILITY UP TO 24 MICROPHONES WITH AM3008 EXPANSION.
 - e. Output (LINK OUT) to connect AM 3008 Expansion to AMA 3150, AMA 3250 and AM 3000 (AM 3008 only)

- OPTIONAL ADVANCED FUNCTIONS
 - a. C 656 OPTIONAL REMOTE CONTROL CARD
Optional cards for independent volume remote control for each channel and for the master. This card could have ON/OFF or volume function.
 - b. C 718 OPTIONAL CARD FOR LOGICAL FUNCTIONS
Optional card whit remote control connector for the logic circuits of each channel. Optional card for logic functions selectionable by dip-switch on the back panel
 - I. FILIBUSTER: the first active microphone closes all the others
 - II. OVERRIDE: opens all the microphones
 - III. NOM: set On or OFF the NOM circuit
 - IV. LAST ON: the last active microphone remain open

FLEXIBLE FOR ANY APPLICATION

The Automatic Mixer could have various uses for sound enhancement, recordings and broadcast. In each multi-micro phonic application, in which single speaker's voice must be superior to environmental noise and reverberation, AMA3150 supplies a clearer and more intelligible audio.

POSSIBLE USES

- Conferences
- Places of worship
- Hotels sound enhancement
- Court halls
- Audio conferences
- Hotels
- Schools
- Airports
- Offices
- Supermarkets
- Restaurants
- Motorway restaurants
- Auditorium
- Industries
- Gyms



WHY AUTOMATIC MIXING IS NECESSARY

Installations with more microphones have always given several problems to audio technicians. Using few microphones, some speakers have a clear audio, while others seem to be “far away”. If too much microphones are used, the background noise is higher and it makes difficult listening to the speakers.

A single speaker’s voice often reaches and is shot by more microphones and that causes a poor audio quality. Since it is difficult choosing an exact no. of microphones to cover an area without superimpositions, somebody should open and close microphones according to who is speaking. This requires not only a great ability, but also a stressful quantity of work. Use an automatic mixer.

HOW DOES AN AUTOMATIC MIXER WORK

Automatic mixing “opens” microphones when they are in use and it “softens” them when they are not used.

Minimizing the number of simultaneously working microphones, that reduces the whole background noise supplying a clearer and more intelligible audio.

Note: microphones opening, instead of turning on and off, gives a softer and more natural starting. Softened microphones, even technically working, are quite “low” to seem closed.

APPLICATIONS WITH PA SYSTEMS

This kind of applications requires more than the others the automatic mixing. The ground is the feedback, the high-frequency sound, which occasionally is heard from loudspeakers; each open microphone increases feedback possibility. More microphones are open at the same time, more it is likely that feedback happens; automatic mixers reduce this problem by keeping a minimum no. of open microphones.

This unit includes a circuit (NOM) reducing of 3 dB the total gain of the system, any time the open microphone no. doubles (i.e. from 1 to 2, from 2 to 4 and from 4 to 8); this keeps PA system under the level in which feedback could happen.

POWER SUPPLY

The unit is expected to work with 230 VCA – 50/60Hz distribution system.

In case of power dysfunction, check the outside protection fuses (230 V~21 of fig. 1)) and eventually replace them with others of same calibration; if one of them burns out immediately, do not go on and have check the unit by qualified personnel.

Take away plug from 230 VCA electric power socket always, before removing fuses and, in any case, open the unit framing.



INSTALLATION

Advanced functions

- Commutators (19 of fig. 1a) enable loudspeakers to be silenced and could activate 4 different zones separately.
- LINK IN input (34 of Fig. 1) is used to increase the disponibility of number of the microphones connecting an expansion by one cable (Patch cord CAT 5 FTP 8 pin whit RJ45)
- LINK OUT (37 of Fig.1c) is used to increase the disponibility of number of the microphones connecting the expansion by one cable (Patch cord CAT 5 FTP 8 pin whit RJ45)
- On the back panel, each microphonic input is arranged for insertion of 48V phantom power supply and of high-pass filter through dip-switch (25 of fig. 1).
- There are JUMPER on the Master module for internal setting of PRE OUT output pre/post Master and pre/post the equalizer (JP16, JP17, JP18 of FIG.5).
- Micro/line selection whit internal setting by jumper on the input module, jumper on=micro, jumper open=line (JP7 of FIG.5)

INTERNAL MODIFIES

Any modify has to be made in an authorized assistance centre or in factory directly.

- On each microphonic channel is possible to active the mute function of priority on the remaining microphones. Each MUTE selected channel has the priority on the other microphonic channels, which are going to be closed even if a speaker is talking. Also is possible to set a channel in order than it can't be silenced by the MUTE function of the other priority micro.
- TAPE REC output supplies the direct signal of the inputs without the eventually settled tone corrections, or the post master signal, that is whit all the corrections settled by the tone and level controls.

OPTIONAL CARDS

Their insertion has to be made in an authorized assistance centre or directly in factory

- On each channel and on master there is arrangement for volume remote control card insertion (Internal setting FIG.5), that connection has to be made by shielded cable connect to the connector (32 of fig.1), without section limitations for distances up to 150 mt.
In remote place is possible to use potentiometer volume control or a switch for the ON/OFF function. For connector connections see Fig.2
- The logic functions card has 4 selectable programs by the dip-switch (33 Fig.1).
 - a. FILIBUSTER: gets on this function when any microphone get activated prevent the other microphones from get active till the speaker do a pause so long than the relative microphone get deactivated. So the speaker than speaks can not be interrupted.
 - b. ALL OVERRIDE: gets on this function all inputs are get activated, therefore the microphonic signals are amplified as a not automatic mixer
 - c. NOM: set ON or OFF the NOM circuit that reducing the gain according to number of open microphone.
 - d. LAST ON: blocking of the last microphone that maintain it active till it is not replaced by the activation of another microphone. This function guaranties then environmental acoustics is always present. Without this function, a long waiting in the conversation causes the deactivation of all microphones; with the result of loses audio signal effect.



- The remote control card of logic circuits consents to extend the adjustment options and opportunity of installations. The logic circuits could be used for different applications, from simple 'cough' push button to complex environment systems adjusted by computer.
 - a. GATE: when the respective audio channel is get activated by audio signal at its input, it turn at 'low' logic condition.
 - b. MUTE: forced deactivation of channel when a 'low' logic signal is applied.
 - c. OVERRIDE: forced activation of channel when a 'low' logic signal is applied. MUTE is priority when MUTE and OVERRIDE functions are activated.
 - d. LOGIC GROUND: logic ground is different to the audio ground. Connect at this pin all logic ground points, supply's ground of outside logic circuit enclosed. For avoid 'click' in commutation condition, do not connect the logic ground to the audio ground or chassis or rack ground. The logic circuits are directing by multiple connector DB25 on back panel (32 of Fig.1). The pins connections are in the following table.

LOGIC CIRCUITS CONNECTIONS (32 of Fig.1)

LOGIC FUNCTION	INPUT CHANNEL	CONNECTOR PIN NUMBER
GATE 1	1	1
GATE 2	2	15
GATE 3	3	4
GATE 4	4	18
GATE 5	5	7
GATE 6	6	21
GATE 7	7	10
GATE 8	8	24
OVERRIDE 1	1	14
OVERRIDE 2	2	3
OVERRIDE 3	3	17
OVERRIDE 4	4	6
OVERRIDE 5	5	20
OVERRIDE 6	6	9
OVERRIDE 7	7	23
OVERRIDE 8	8	12
MUTE 1	1	2
MUTE 2	2	16
MUTE 3	3	5
MUTE 4	4	19
MUTE 5	5	8
MUTE 6	6	22
MUTE 7	7	11
MUTE 8	8	25
Logic Ground	all	13



For a good system working

- Keep channel and master volume at about 80%.
- Adjust the GAIN (1 of Fig. 1) to have, in normal working conditions, maximum output power (out meter = 0dB 16 of FIG.1a e 1b).
- Optimise intelligibility with channel and main equalizer.
- Reduce MASTER volume (15 of Fig. 1a e 1b) in order to obtain the required power.
- Be sure that mass commutator (29 of Fig. 1) is in mass-connected position.

LOUDSPEAKER CONNECTIONS (AMA 3150 and AMA 3250 only)

The device is provided with an output terminal board (35 of Fig.1a) where there are all impedances available, for connection to constant impedance and constant voltage lines.

Moreover is provided with another multi-way output terminal board (36 of Fig.1a) with the chance of subdivide total power on independent 4 zone selected by push buttons (19 of Fig.1a).

So could select to the outside the better loudspeakers type for the system to realize.

In Fig.3 there are any loudspeakers connections system example.

Constant voltage lines (50V, 70V, 100V)

In order to achieve the maximum efficiency of the system and to take precautions from amplifier bad working, it is necessary to check the effective total power handling of the loudspeakers that has to be equal or lower than the RMS power value of used amplifier. It's a good rule arranging a 10-20% safety margin on the amplifier power capability. (equal bigger power)

Constant impedance lines (4ohm)

In order to achieve the maximum efficiency of the system and to take precautions from amplifier bad working, it is necessary to check the effective loading impedance_of the lines. The total speakers impedance should be equal or higher than pre-selected value for connection.

To get that, each loudspeaker should be without transformer and should be connected in series or in series-parallel groups; In any case loudspeakers should also have the same power handling.



SPECIFICATIONS (AMA 3150-AMA 3250-AM 3000-AM 3008)

LINE	Electronic balanced/Transformer optional
Maximum level:	100mV(GAIN max) 3V(GAIN min)
Input sensitivity:	8mV (-40dBu)/430mV (-5dBu)
MICRO	
Maximum level:	2.5mV(GAIN max) 200mV(GAIN min)
Input sensitivity:	0,7mV (-61dBu)/45mV (-25dBu) ±1dB
CMRR:	>60dB
Gain excursion	36dB
Hi-pass filter:	100Hz 6dB/oct
Phantom power supply:	+48V
TAPE/CD	
Impedance TAPE/CD :	47Kohm
Input sensitivity TAPE	-12dBu
Input sensitivity CD	-7dBu
PRE OUT	
Output impedance PRE OUT	Electronic balanced/Unbalanced 140ohm bal ; 70ohm unbal
Output sensitivity:	0dBu
REC	
Output impedance REC	Unbalanced 70ohm unbal
Output sensitivity:	0dBu
SEND	
Output impedance SEND	Unbalanced 70ohm unbal
Output sensitivity:	0dBu
RETURN	
Impedance RETURN	47Kohm
Input sensitivity:	0dBu
Bass:	±12dB a 70Hz
Mid:	±12dB a 700Hz
Treble:	±12dB a 10KHz
Equalizer:	±10dB Freq. 315, 500, 700, 1K, 1K4, 2K, 2K4, 3K15, 4K, 6K3Hz
Frequency response (-3dB) input CD:	50Hz÷20KHz
Frequency response (-3dB) input MIC:	100Hz÷16KHz
S/N RATIO 20÷20KHz weighted master at anticlockwise	95 dB
S/N RATIO 20÷20KHz weighted at clockwise	84 dB
EIN Micro (noise equal to the input) 20÷20KHz weighted Rs=150ohm	-126dBV
Power supply:	230V~ 50÷60Hz



SPECIFICATIONS (AMA 3150-AMA 3250-AM 3000-AM 3008)

	AMA 3150	AMA 3250	AM 3000	AM 3008
Output power RMS	150W 50V, 70V, 100V	250w 50V, 70V, 100V	-----	-----
Output power IHF	225W 50V, 70V, 100V	375W 50V, 70V, 100V	-----	-----
Consumption:	200VA	300VA	20VA	20VA
Dimensions (WxHxD):	436 (Rack482)x132x304		436 (Rack482)x132x254	
Weight (Kg):	12	14	2,5	2,5

CONTROLS AND FUNCTIONS (as per Fig.1a, 1b e 1c)

1. GAIN – gain adjustment.
2. NC
3. TREBLE – treble adjustment.
4. MID – mid adjustment.
5. BASS - bass adjustment.
6. OVER – Led for channel overload indication
7. GATE - led indication of open channel.
8. LEVEL – MIC/LINE input volume.
9. BASS – CD/TAPE channel bass adjustment.
10. TREBLE - CD/TAPE channel treble adjustment.
11. TAPE – led indication of input TAPE selection.
12. CD – led indication of input CD selection.
13. CD/TAPE switch selector
14. LEVEL – CD/TAPE channel input volume.
15. MASTER – main volume.
16. VU meter – audio output level indicator.
17. IN/OUT – equalizer selector.
18. EQUALIZER – microphone main equalizer.
19. LOUDSPEAKER – speaker lines selector.
20. POWER – ON/OFF switch.
21. MAINS - 230 V~ supply mains socket, with protection fuse of CA mains.
22. TAPE REC - stereo output for audio recorder.
23. TAPE PLAY - stereo input for audio recorder.
24. CD - compact disc input.
25. PHANTOM / LOW FILTER – Micro-switch to connect 48 VCC phantom supply to inputs and insert low-cut filter.
26. MICRO 1÷8 – micro/line input
27. ANTILARSEN SEND - output for external sound processing unit.
28. ANTILARSEN RETURN – input from external sound processing unit.
29. GND LIFT / BY-PASS - Micro-switch to connect electrical mass to chassis, and to by-pass SEND / RETURN connections for antilarсен.
30. PRE OUT – mixed output of “pre” sector of amplifier.
31. VCA REMOTE VOLUME (option) – remote volume control connector
32. REMOTE LOGIC (option)– remote logic circuit control connector
33. PROGRAMS LOGIC(option) – Micro-switch for logic function programs selector.
34. LINK IN – input to extend the number of microphonic input by the AM 3008.
35. POWER OUT – direct speaker lines output.
36. LOUDSPEAKER ZONE OUT – loudspeaker lines output with zone selection
37. LINK OUT – output to connect AM 3008 to amplified mixer or mixer.



FIG. 1a (Amplified Automatic Mixers AMA 3150-AMA 3250)

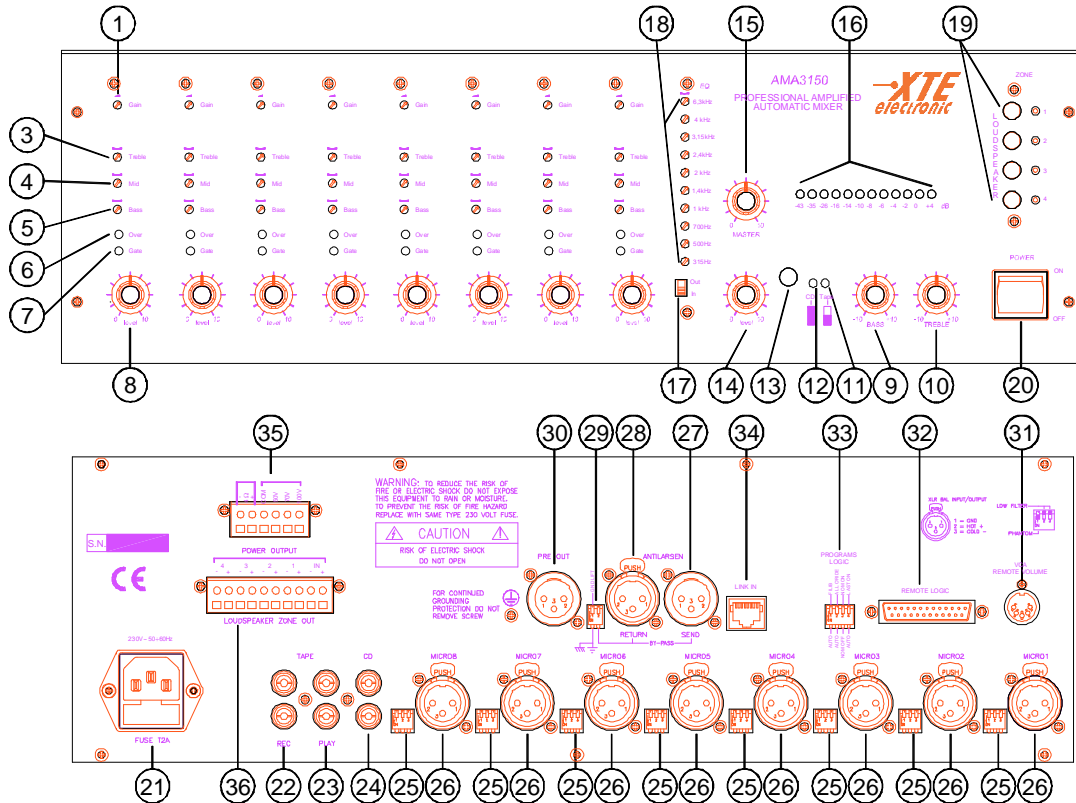


Fig.1b (Automatic Mixer AM3000)

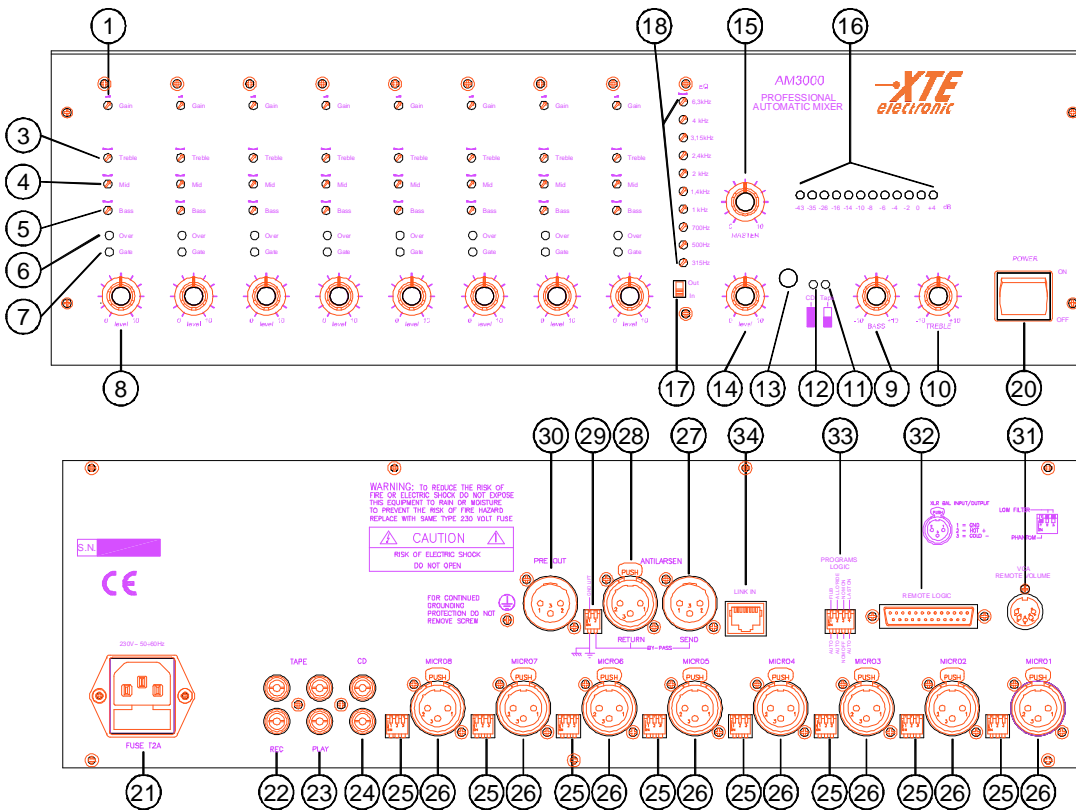


Fig.1c (Expansion AM 3008)

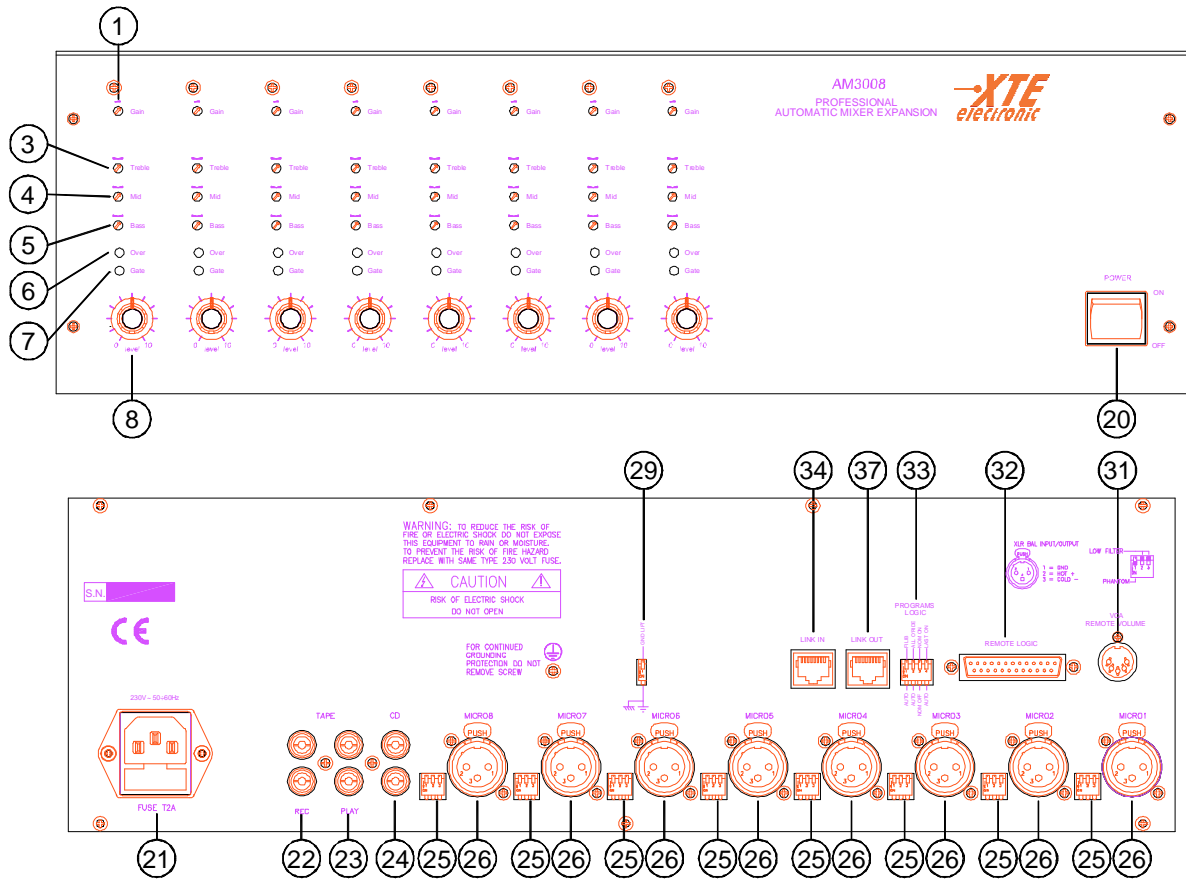
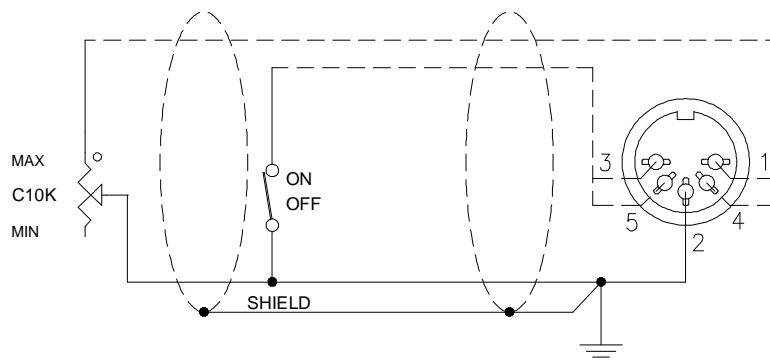


FIG.2

VCA REMOTE CONTROL



- 1 = OPTIONAL CONTROL X
- 2 = GROUND
- 3 = OPTIONAL CONTROL X
- 4 = OPTIONAL CONTROL X
- 5 = OPTIONAL CONTROL X

X = 1-8 MICRO CHANNELS; MASTER VOLUME; TAPE & CD

Fig.3 _ LOUDSPEAKER LINES CONNECTION FOR AMA3150 AND AMA3250

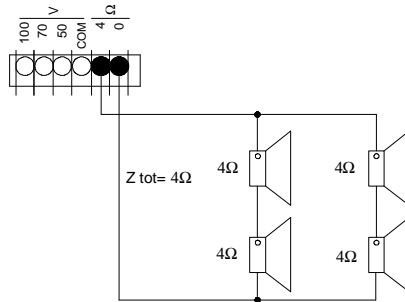


Fig.3a _ Constant impedance lines connection

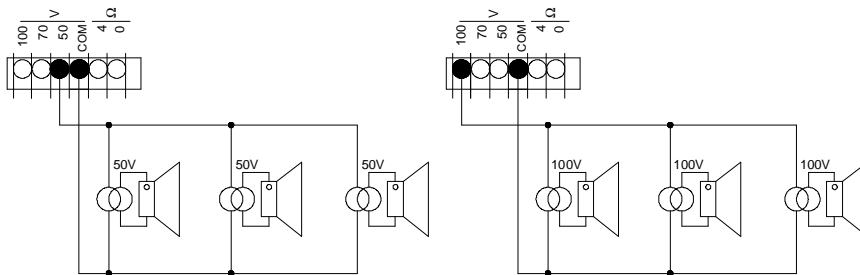


Fig.3b _ Constant voltage lines connection

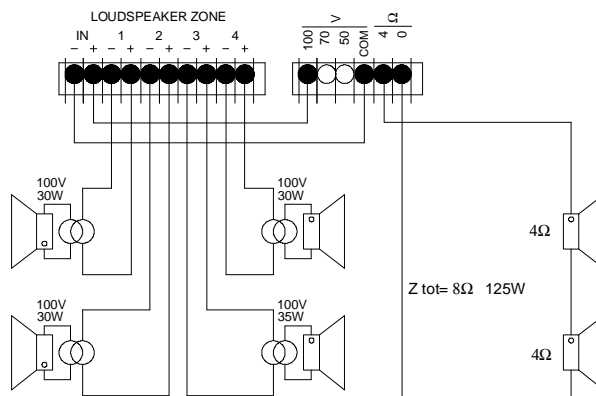
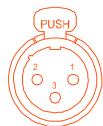


Fig.3c _ Constant impedance and voltage lines connection example for AMA3250

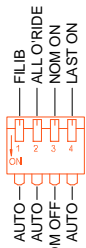
FIG. 4

PLUGS AND TERMINAL CONNECTIONS

XLR



- 1 = GND
- 2 = HOT +
- 3 = COLD -



BALANCED INPUT / OUTPUT

PROGRAMS LOGIC

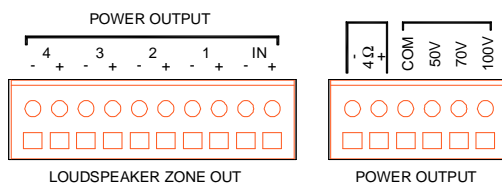
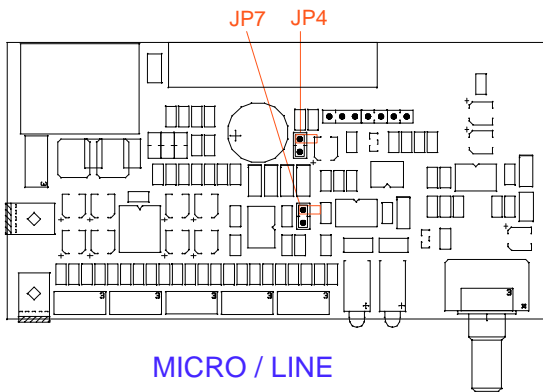
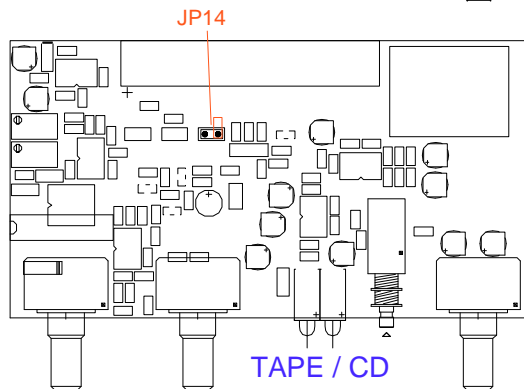


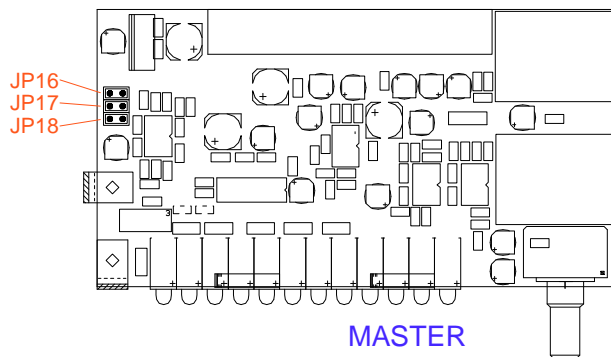
FIG. 5



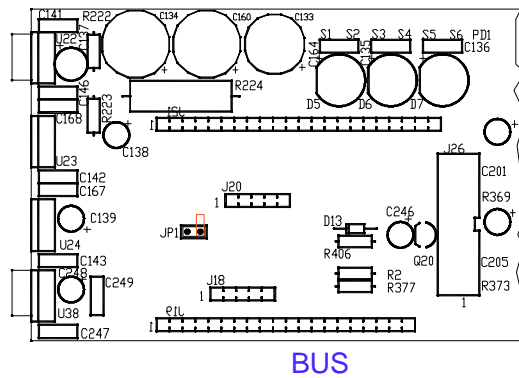
- JP7 On = micro sensibility.
Open = line sensibility.
- JP4 On = without volume remote control board (option).
Open = with volume remote board in (option).



- JP14 On = without volume remote control board (option).
Open = with volume remote board in (option).



- Don't get on more than one jumper for time.
- JP17 On = POST master PRE OUT output signal.
- JP18 On = PRE equalizer PRE OUT output signal.
- JP16 On = POST equalizer and PRE master PRE OUT output signal.



- JP1 On = without volume remote control board (option).
Open = with volume remote board in (option).



Via Tragni, 6
42043 Gattatico RE Italy
Tel. +39 0522 900166
Fax +39 0522 678548
E-mail: info@xteelectronic.com
Web: www.xteelectronic.com