Owner's Manual

TA 60

TA 120

HPA

WARNING

TO PREVENT FIRE OR SHOCK HAZARD. DO NOT USE THIS PLUG WITH AN EXTENON CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PRESENT BLADE EXPOSURE.
TO PREVENT FIRE OR SHOCK HAZARD. DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
TO PRVENT ELECTRICAL SHOCK, MATCH WIDE BLADE PLUG TO WIDE SLOT FULLY INSERT.

This lightnig flash with arrow-head symbol, within an equi-lateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

Warning: To reduce the risk of electric shock, do not remove cover (or back) no user-serviceable parts inside. Refer serving to qualified service personnel.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventiation openings. Install in accordance with the manufacture’s instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other appartus (including amplifiers) thar produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protest the power cord from being walked on or pinched particulary at the plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug the apparatus during lightening sort or when unused for long periods of time.
14. Refer all servicing to qualified personnel. Serving 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.
15. This appliance shall not be exposed to dripping or splashing water and that no object filled with liquid such as vases shall be placed on the apparatus.
16. Caution-to prevent elecrical shock, match wide blade plug wide slot fully insert.
17. Please keep a good ventilation environment around the entire unit.

Table of Contents

Introduction

TA 60 / 120

Welcome

Congratulation and thank you for the purchasing TA series, a multi-function commercial amplifier. These amplifiers are designed to provide a big impact in sound reproduction and to produce the best and highest quality audio at an affordable price. We wish you great enjoyment and satisfaction when using your amplifier, whether you are an installation, or reinforcement engineer.

Unpacking and Installation

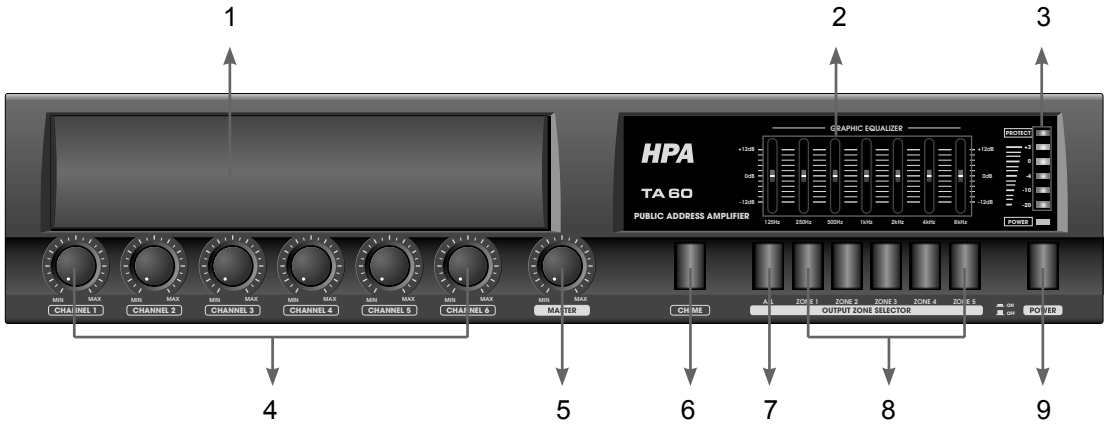
Although it is neither complicated to install nor difficult to operate your amplifier, a few minutes of your time is required to read this manual for a properly wired installation and becoming familiar with its features and how to use them. Please take a great care may be needed when moving your set and are required if it ever becomes necessary to return your set for service. Never place the unit near radiator, in front of heating vents, to direct sun light, in excessive humid or dusty location to avoid damages and to guaranty a long reliable use.
Connect your unit with the system components according to the description on the following pages.

Features

The TA-60 and TA-120 are comprehensive, all-in-one mixer-amplifier solutions for commercial and industrial applications.These low-cost units provide all necessary features in a simple building-block format.

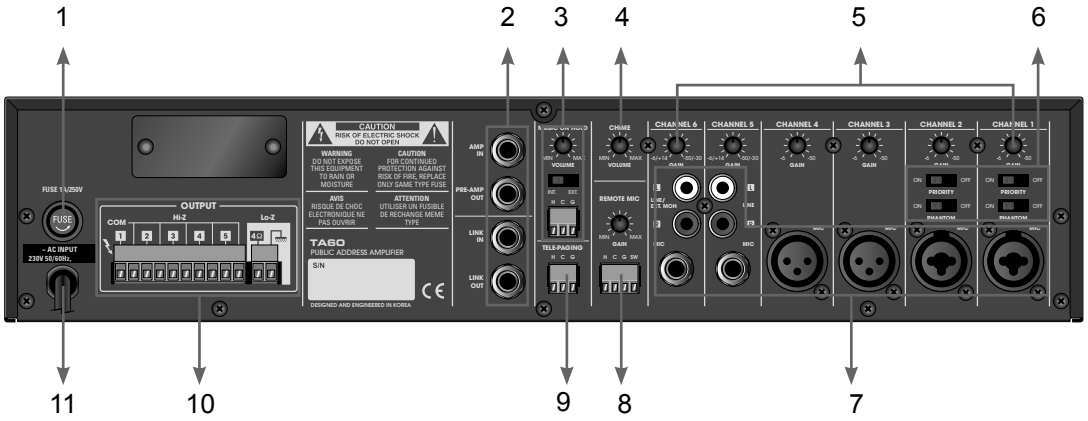
* Six microphone or line inputs with 1/4-inch phone,XLR and RCA jacks.
* Acceptable wide range input level.
* One remote microphone input with EURO block terminal.
* M.O.H(Music On Hold) input and output.
* One telephone paging input with EURO block terminal.
* Phantom power for MIC channel 1 and 2.
* Three layer priority muting.
* Built in four kinds user selectable pre-announce chime.
* 60watts(TA-60),120watts(TA-120) rated power output.
* Advanced protection system includes current limiting, over current and thermal protection.
* Desktop and 19-inches rack mountable type.
* Seven band graphic equalizer.
* Expendable by adding audio mixer and power amplifier with LINK and PRE-AMP terminal.
* Low distortion and low noise level.
* Compact size and lightweight.
* Ideal commercial and industrial use.

Front Panel controls



1. Bay for adding optional music source (CD player with AM/FM Tuner,or MP3 player).
2. Graphic equalizer control (125Hz/250Hz/500Hz/1kHz/2kHz/4kHz/8kHz).
3. Indicators(Protection/Output level/Power).
4. Input channel volume controls.
5. Master volume controls.
6. Pre-announce chime switch.
7. All speaker zone output selector.
8. Individual speaker zone output selector.
9. Power switch

Rear Panel controls



1. AC fuse.
2. Expansion ports (AMP-IN/AMP-OUT/LINK-IN/LINK-OUT).
3. M.O.H (Music On Hold) output and level control.
4. Pre-announce chime level control.
5. Gain controls for variable input level.
6. Phantom power and priority control switches.
7. Signal input connectors.
8. Remote microphone station input connector and output level control
9. Telephone paging input connector.
10. Speaker outputs connector (4-ohm, selectable 25V, 70V and 100V).
11. AC power cable.

Setup

Installation:

CAUTION: Before you begin, make sure your mixer-amplifier is disconnected from the power source, with the power switch in the “OFF” position and all level controls turned completely down (counterclockwise)

You may stack mixer-amplifiers without using a cabinet or you may place a single mixer-amplifier on a surface with 12-inches (about 30cm) of air space around the unit for convection cooling. When using an equipment rack, do not mount units directly on top of each other. Allow 2U between units for convection cooling. The side walls of the rack should be a minimum of 2-inches (about 5cm) away from the amplifier sides, and the back of the rack should be a minimum of 4-inches (about 10cm) from the mixer-amplifier rear panel.

How to attach rack ears

1. Locate the two rack ears and six rack-ear screws supplied.
2. Place a rack-ear flush with the right front of the chassis.
3. Insert a screw into the bottom hole of the rack-ear and chassis. Screw it in.
4. Insert a screw into the rnid hole of the rack-ear and chassis. Screw it in
5. Insert a screw into the top hole of the rack-ear and chassis. Screw it in.
6. Repeat steps 2 to 5 for the left side of the chassis.
7. Remove the four legs from bottom of unit.
8. Please refer to Figure .

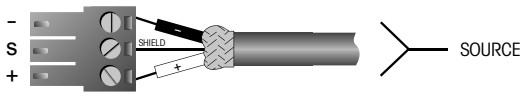
[How to connect rack ears]

Wiring guide

Choose input wire and connectors

HPA recommends using pre-built or professionally wired balanced line,22 to 24 gauge cables. Figure shows connector pin assignments for wiring .The RCA input connections can also be used for unbalanced inputs.

BALANCED LINE

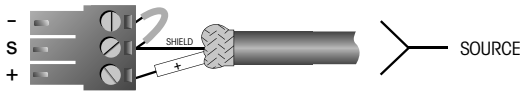


MIXER-AMP INPUT

BALANCED LINE

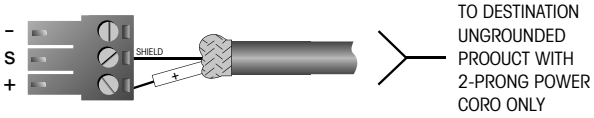
OUTPUT

UNBALANCED LINE



MIXER-AMP INPUT

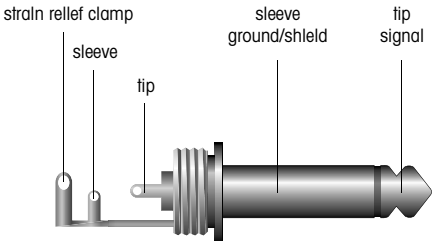
UNBALANCED LINE



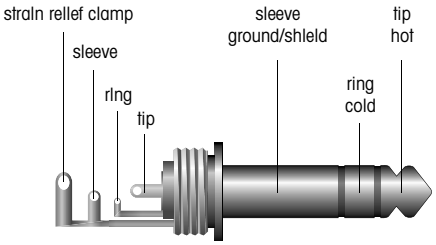
(This connection reduces
the signal level by 6 dB)

OUTPUT

Unbalances 1/4" Connector



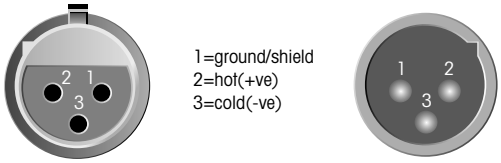
Balances TRS 1/4" Connector



For connection of balanced and unbalanced plugs,
ring and sleeve have to be bridged at the stereo plug

XLR Balanced Wiring Guide

Input **output**



For unbalanced use pin 1 and 3 have to be bridged

Choose output wire and connectors

For the amplifier output connectors,HPA recommends using pre-built or professionally wired, high-quality, and heavy gauge speaker wires.You may use EURO blocks for your output connectors.To prevent the possibility of short-circuits, wrap or otherwise insulate exposed loudspeaker cable connectors.

Using the guidelines below, select the appropriate size wire based on the distance from amplifier to speaker. The wire sizes apply to the 4-ohm tap.

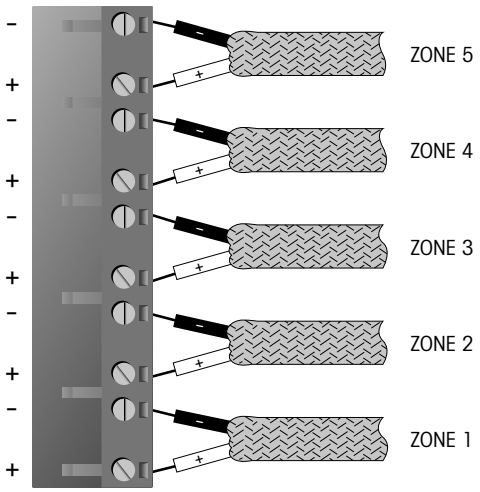
Distance	Wire Size
Up to 25 ft.	16 AWG
26~40 ft.	14 AWG
41~60 ft.	12 AWG
61~100 ft.	10 AWG
101~150 ft.	8 AWG
151~200 ft.	6 AWG

NOTE: Custom wiring shoule only be performed by qualified personnel. Class 2 wiring is required.

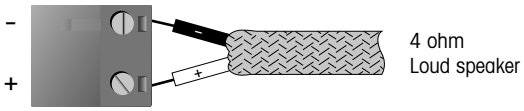
CAUTION: Never use shielded cable for output power wiring

Figure shows connector pin assignments for wiring

High-Z Speaker Output



Low-Z Speaker Output



[Pin assignments for speaker connecting]

Connections

INPUT: Connect microphones or balanced line-level sources to mixer-amplifier balanced inputs. Set Gain volume accordingly. Connect unbalanced line-level signals to RCA input connectors.

OUTPUT: Maintain proper polarity on output connectors.

For each output channel, connect the output EURO block terminals to the loudspeaker loads. Use terminals marked ⏚ (GND) and 4Ω for a 4-ohm loudspeaker load, or use terminals marked 1 to 5 and COM for constand-voltage loudspeaker loads.

Connect the COM terminal to speaker negative(-) lead; connect one of the other terminals to speaker positive (+) lead.

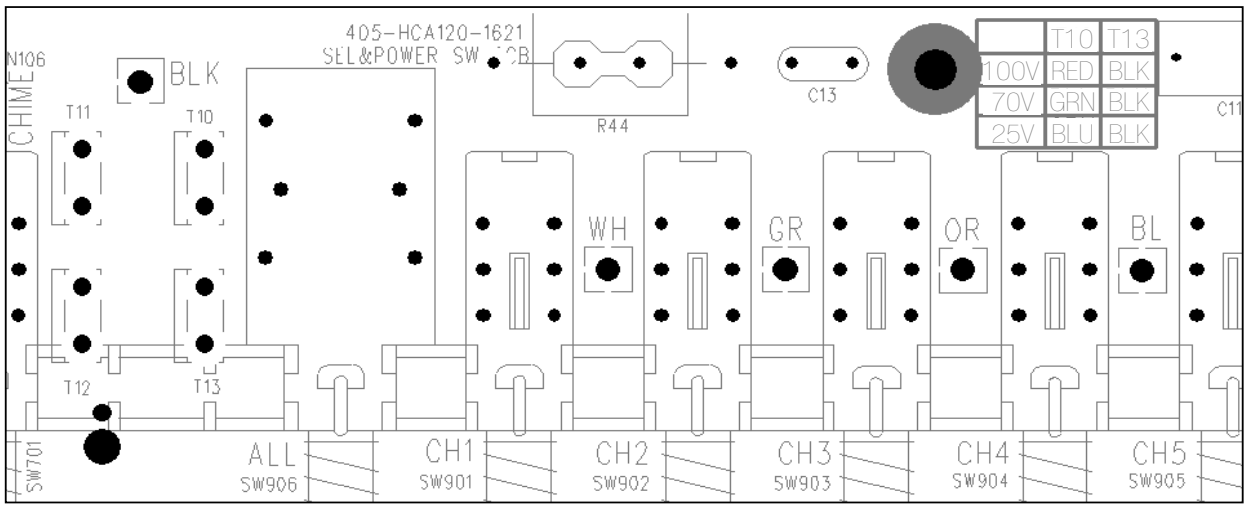
The impedance and output voltage are same as following Table.

TA-60	4Ω / 15.5V	10Ω / 25V	83Ω / 70V	165Ω / 100V
TA-120	4Ω / 22V	5.2Ω / 25V	42Ω / 70V	83Ω / 100V

[output voltage and impedance]

NOTE : Impedances indicated in the table represent the total speaker system impedances.

Figure shows the way how to select impedance.



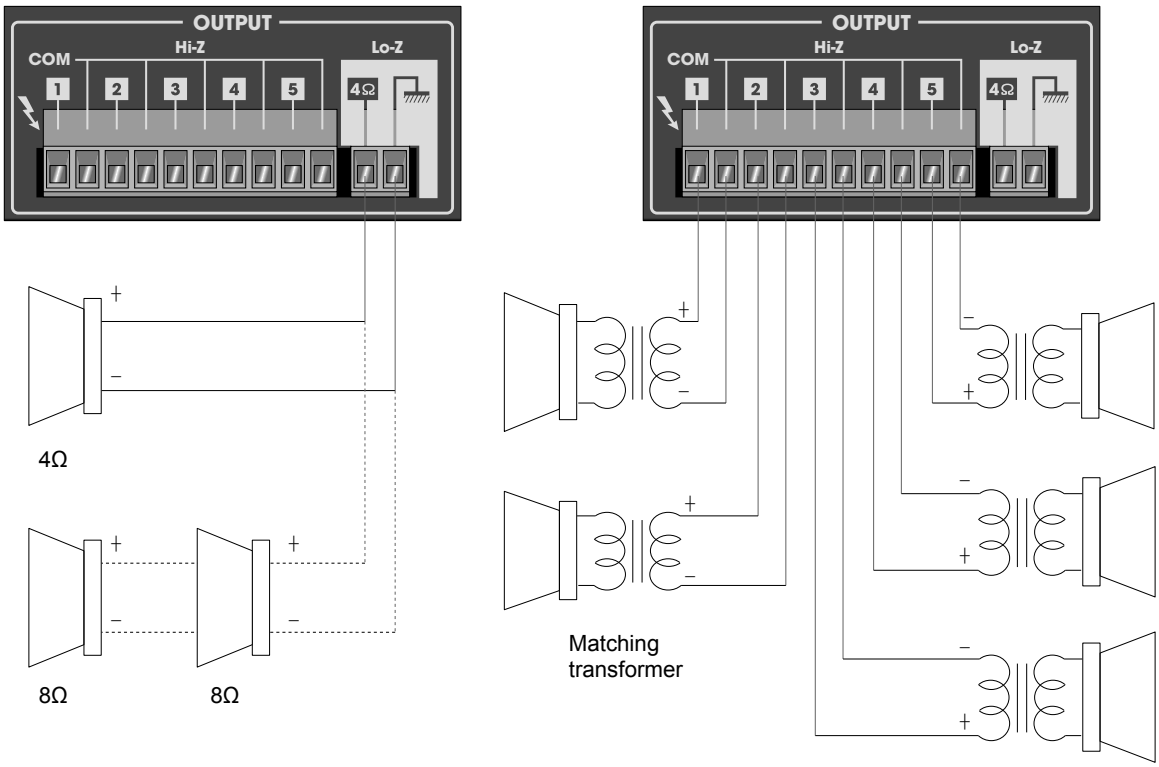
[How to change high impedance output voltage]

The wires of output transformer are connected to terminal on output select pcb same as follow table.

	T10	T11	T12	T13
100V	RED wire	BLUE wire	GREEN wire	BLACK wire
70V	GREEN wire	RED wire	BLUE wire	BLACK wire
25V	BLUE wire	GREEN wire	RED wire	BLACK wire

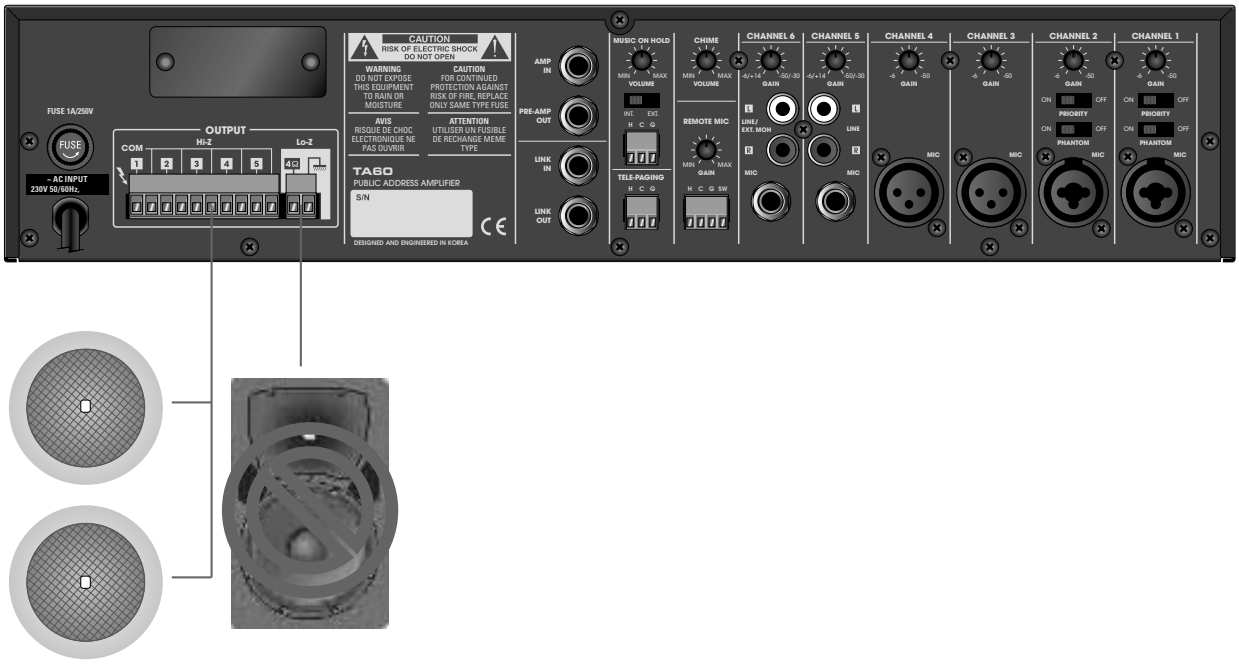
NOTE:These connectors are set in 100V output except US, CANADA (70V output)

Speaker connection is shown in Figure.



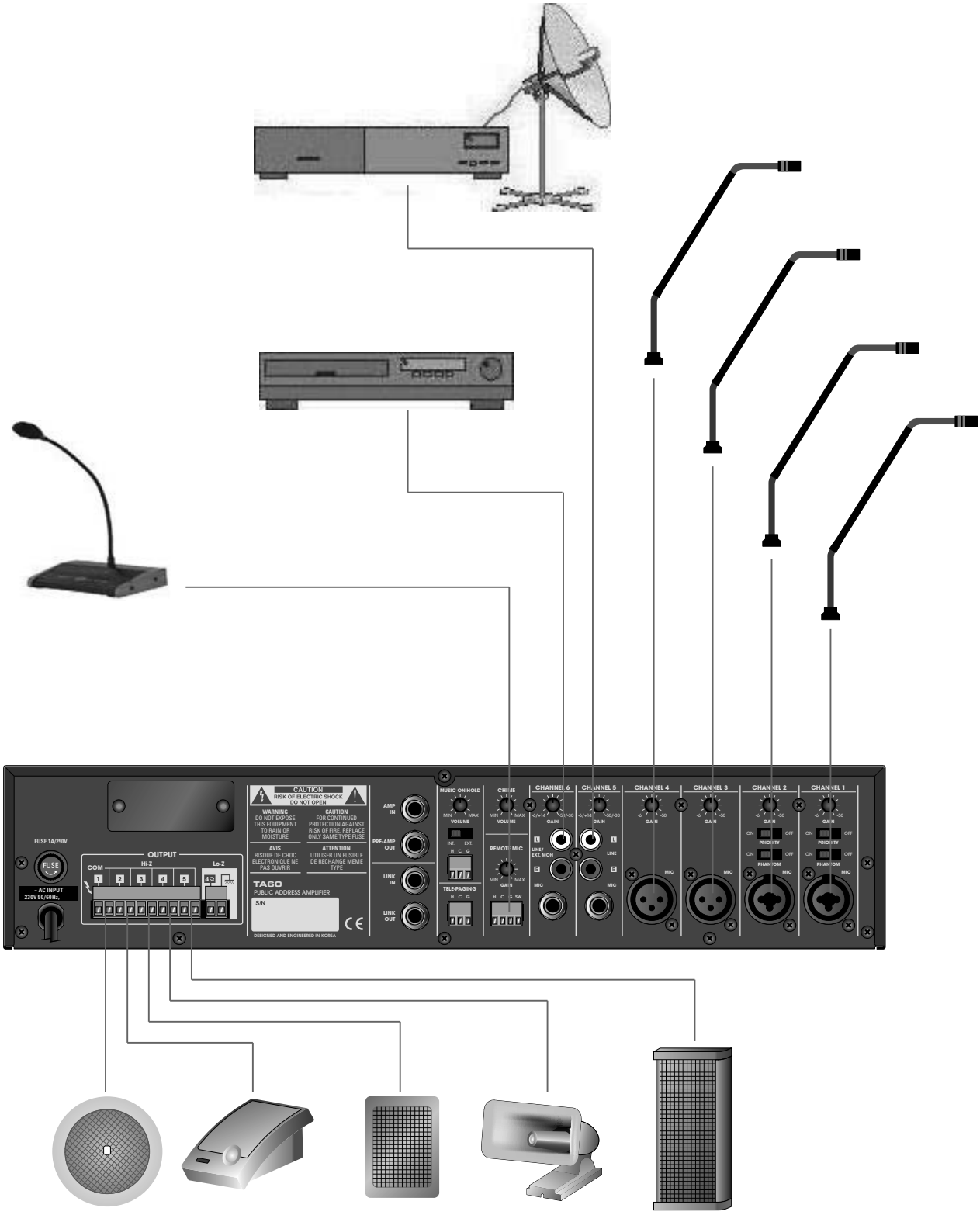
[How to connect speakers]

CAUTION : Never use both the Low-Z(4 ohms)and Hi-Z(25V, 70V and 100V) terminals at the same time



[Wrong connection]

Typical input and output wiring is shown in Figure.



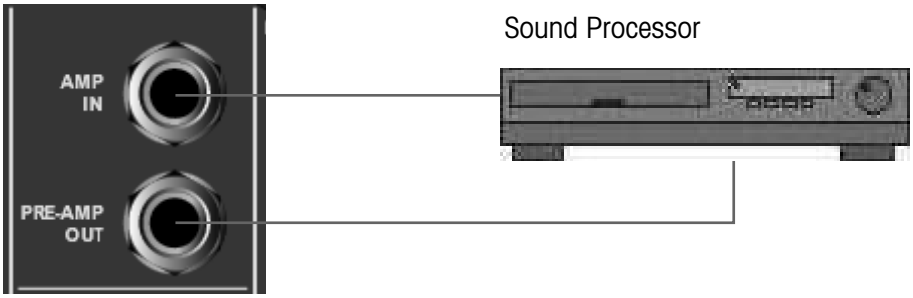
Operations

External equipments connection

By connecting a signal processor such as an equalizer or limiter between the mixer section (PR E-AMP OUT) and the power amplifier section(AMP IN) of the TA series, signals can be tailored for desired sound output.

NOTE

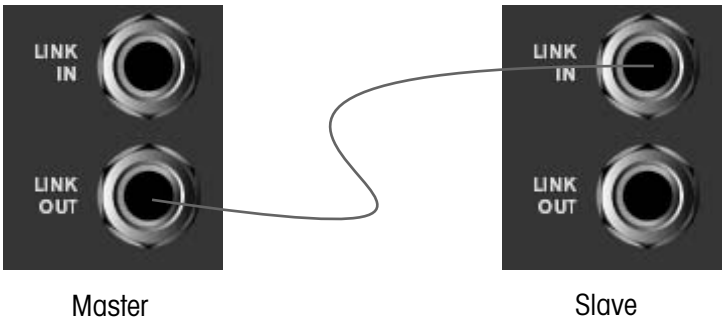
Inserting a 1/4-inch phone plug into AMP IN terminal disconnects internal power amplifier section from the mixer section.



[External equipments connection]

Expansion TA series

TA series mixer-amplifier allows expansion with LINK IN and LINK OUT connector.
If you need more input and output, just this function allows you can do that.
This function affect which signals are heard when another mixer or TA series mixer-amplifier are wired to the mixer-amplifier.

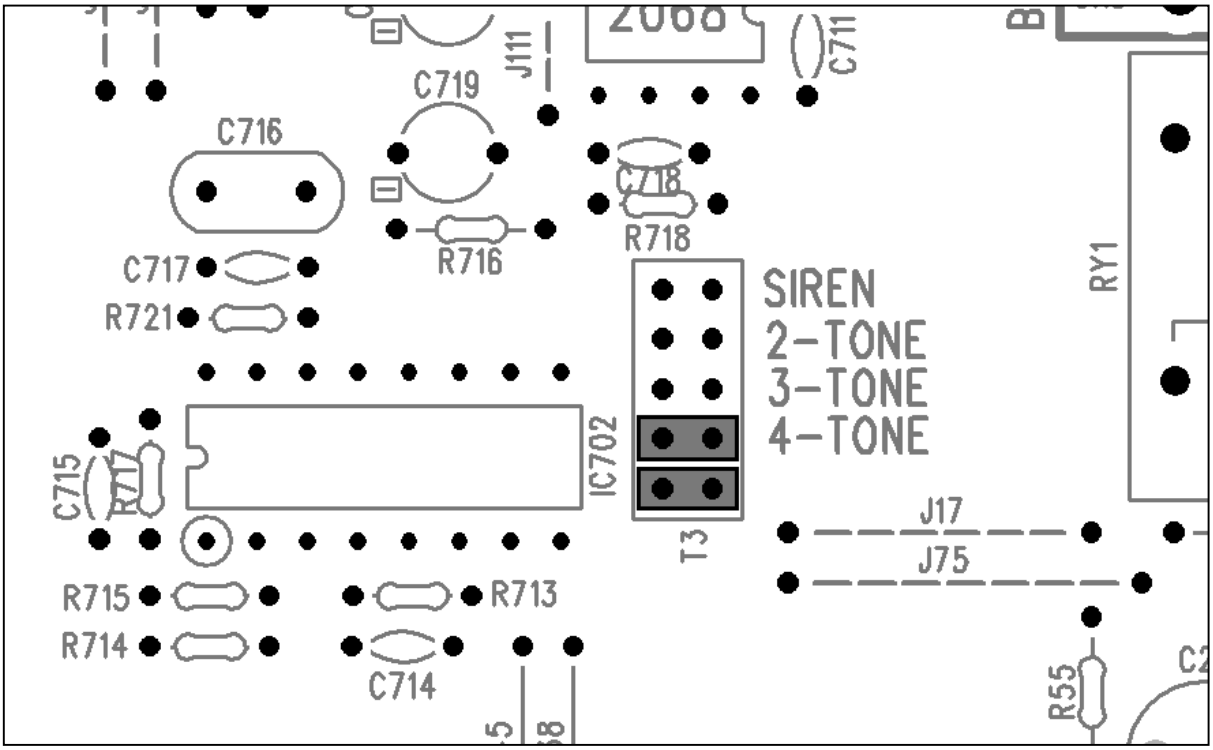


[Expansion TA series]

Preannounce chime

TA series mixer-amplifier supply user selectable 4 kinds of preannounce chime.

The way of set up is same as follow figure .



[Chime selection]

Figure shows default set in factory. You can move the position of jumper on the T3 of main PCB for changing pre-announce chime.

Priority

This function allows talk over for MIC channel 1 and 2.

All other input signals are muted when this function is activated during stay “ON” position.

Figure shows the priority switches and its “ON” and “OFF” positions.

Phantom power

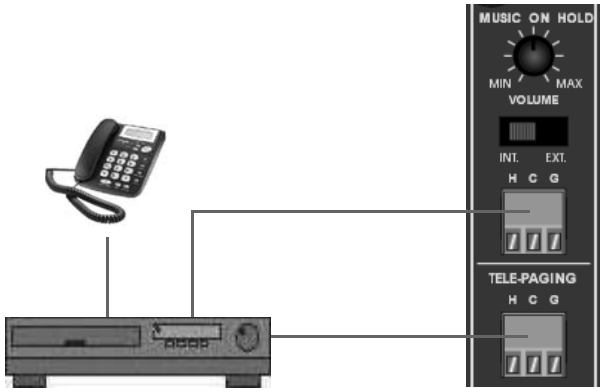
TA series mixer-amplifier supply DC + 15 Volts phantom power to use condenser microphone with MIC 1 and 2 channels.

Figure shows the phantom power switches and its “ON” and “OFF” positions.

[Phantom and Priority]

Music On Hold

Connect mixer-amplifier MUSIC ON HOLD connector to music-on-hold input on telephone interface/PBX like telephone pager. Set MUSIC ON HOLD volume to proper level.
TA series mixer-amplifier supply two way of MUSIC ON HOLD function.
When MUSIC ON HOLD slide switch is “INT” position, MUSIC ON HOLD output is routed from option CDP or MP3 module internally.
When the slide switch is “EXT” position, MUSIC ON HOLD output is routed from LINE IN channel (only channel 6) connected external music source.



Telephone pager/PBX

[Music on hold]

Signal input gain control

TA series mixer-amplifier can accept variable and wide range input signal with trim pot.
Adjusts the trim pot in a range of 44dB to accept variabe external equipments.
Figure 3.6 shows detail input sensitivities.

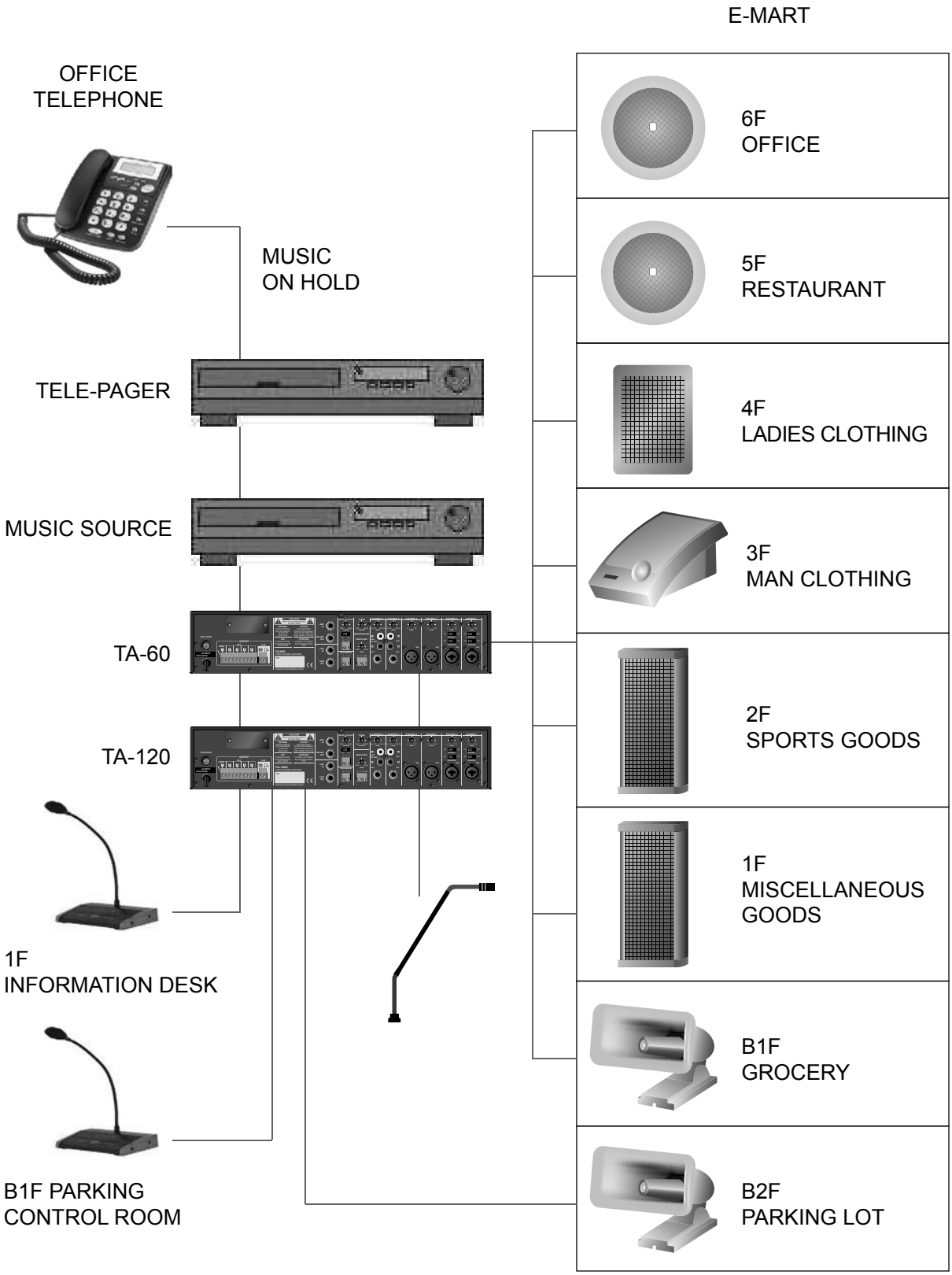
[Acceptable input sensitivity per each channels]

Priority Control

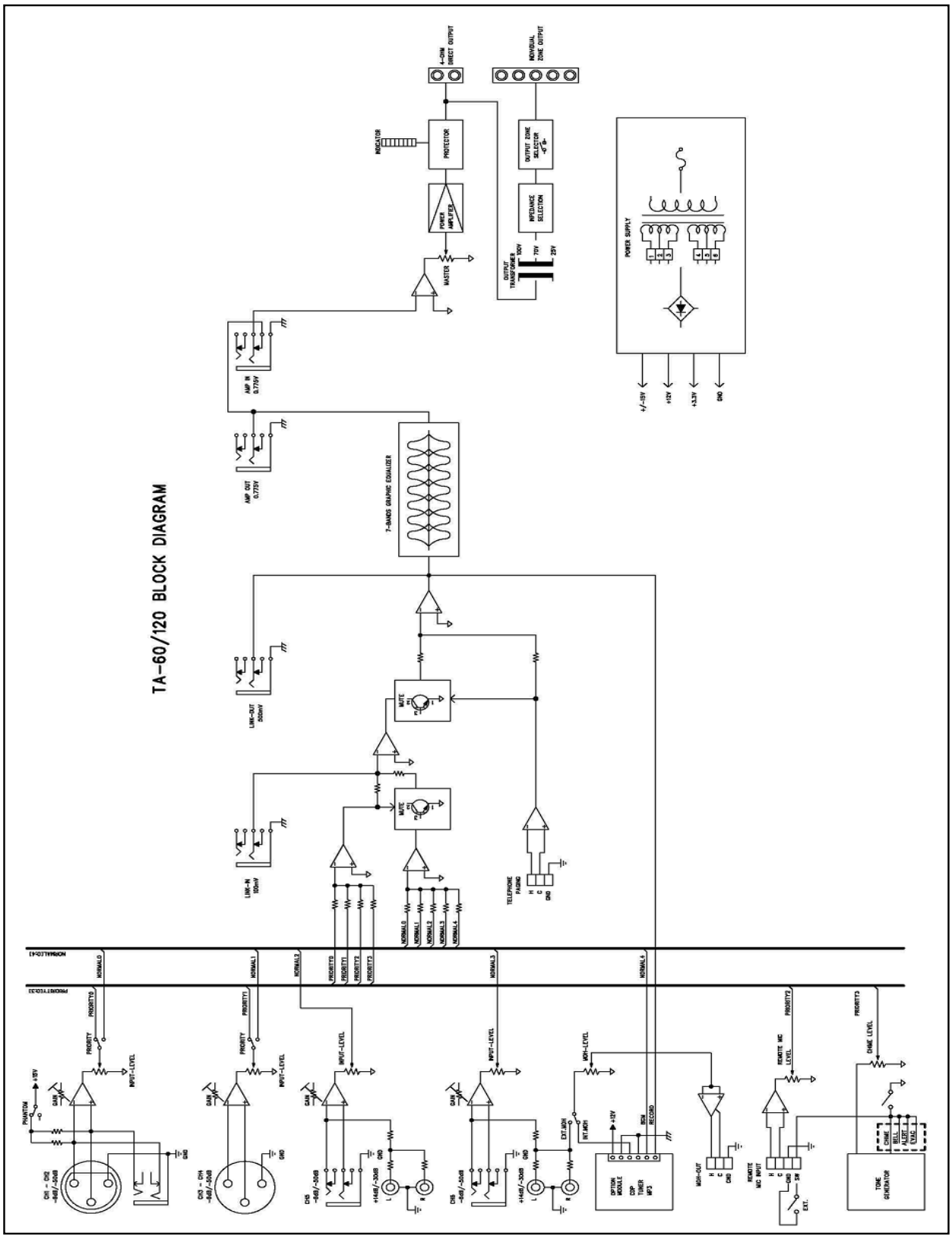
TA series mixer-amplifier has three layer priority mute function. When higher level source is activated, other input signals are muted except same priority level source.

CH3~CH6>CH1~CH2, Remote MIC, Chime>Telephone paging.

Applications



Block diagrams



Specifications

Performance

		TA-60	TA-120
Input Sensitivity for full output at maximum gain	Balanced Microphone Channels	-50dB ± 3dB	
	Balanced Line Channels	-22dB ± 3dB	
	Balanced Remote Microphone Station	-50dB ± 3dB	
	Balanced Telephone Paging	-21dB ± 3dB	
	Unbalanced Link-In	-17dB ± 3dB	
	Unbalanced Amp-In	0dB ± 3dB	
Frequency Response	at 1 watt from speaker out tap.100Hz~10kHz	+1.5dB / -3dB	
Graphic Equalizer	125Hz,250Hz,500Hz,1kHz,2kHz,4kHz,8kHz	±12dB ±3dB	
	Signal to Noise Ratio at rated power output	Better than 90dB	
	Crosstalk at all control maximum	-70dB at 1kHz	
	Rated Output Power at THD 0.5%	60Watts	120Watts
	Total Harmonic Distortion(THD) at 1kHz rated power	Less than 0.5%	
	Phantom Power	15VDC	
	Power Band Width at 1kHz from speaker out tap	80Hz~15kHz with less than 0.5% THD	
	DC Output Offset	Less than ±3mV	
	Operating Temperature/Humidity at non-condensing	0°~40°C at 95% humidity	
Output Voltage and Impedance	4Ω	15.5V	22V
	25V	10Ω	5.2Ω
	70V	83Ω	42Ω
	100V	165Ω	83Ω
Construction	Cooling	Convection Cooled	
	Dimensions (Width/Height/Depth)	420(W) x 88(H) x 320(D) mm	
	Net Weight	8.72 kg	9.76 kg

Necessary modifications are carried out without notice

HPA