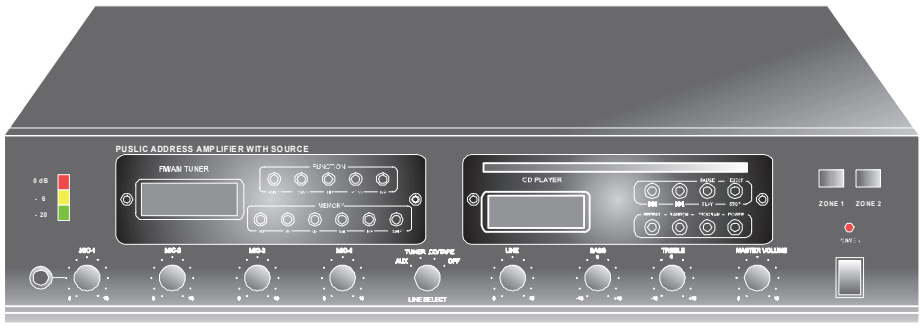
PA AMPLIFIER

MUSIC SOURCES

Installation and User Instructions



Cover Models:

P. A. Amplifier

- **MMA-120**
- **MMA-240**

Amplifier with Tuner and CD player

- **MMS-120**
- **MMS-240**

WARNING:THIS APPLIANCE MUST BE EARTHED

IMPORTANT

The wires in the mains lead are coloured in accordance with the following code:

Green and Yellow:	**Earth**	**(E)**
Blue:	**Neutra**	**(N)**
Brown :	**Live**	**(L)**

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured green and yellow must be connected to the terminal which is marked by the letter E or by the safety earth symbol or coloured green and yellow. The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

If a 13 Amp (B.S.1363) plug or any other type of plug is used,a 5 Amp fuse must be fitted either in the plug or at the distribution board.

GENERAL INSTALLATION

DO NOT run microphone cables near mains, data, telephone or 100V line cables.

DO NOT run 100V line cables near data, telephone or other low voltage cables.

DO NOT exceed 90% of the amplifiers output power when using 100V line (speech only).

DO NOT exceed 70% of the amplifiers output power when using 100V line (high level background music).

DO NOT use re-entrant horn loudspeakers for background music unless the loudspeaker has been specifically designed for this purpose.

AVOID jointing the microphone cable, when this is unavoidable make sure a good screened connector is used, e.g. XLR.

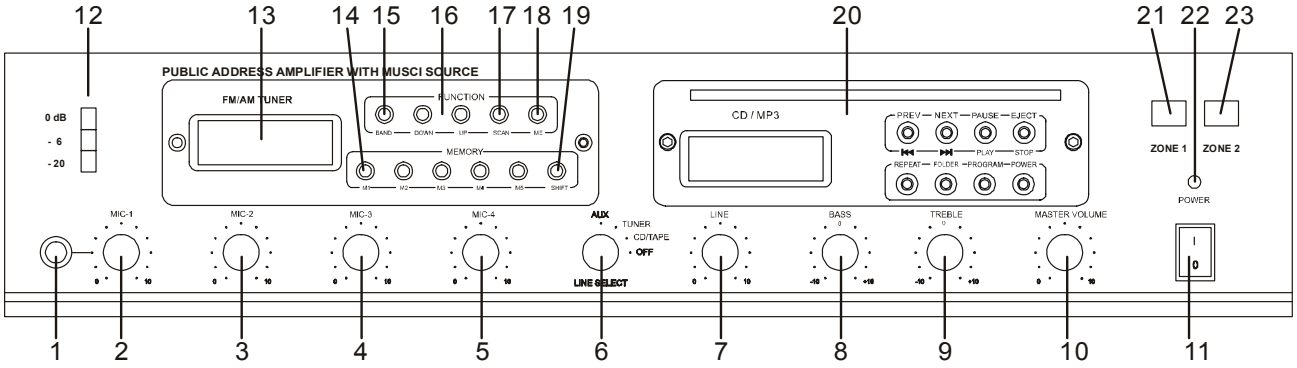
ALWAYS use a balanced or floating low impedance microphone terminating into a balanced input on long microphone cable runs.

ALWAYS use a mains grade double insulated cable for the loudspeaker cable runs.

ENSURE that all loudspeakers are in-phase.

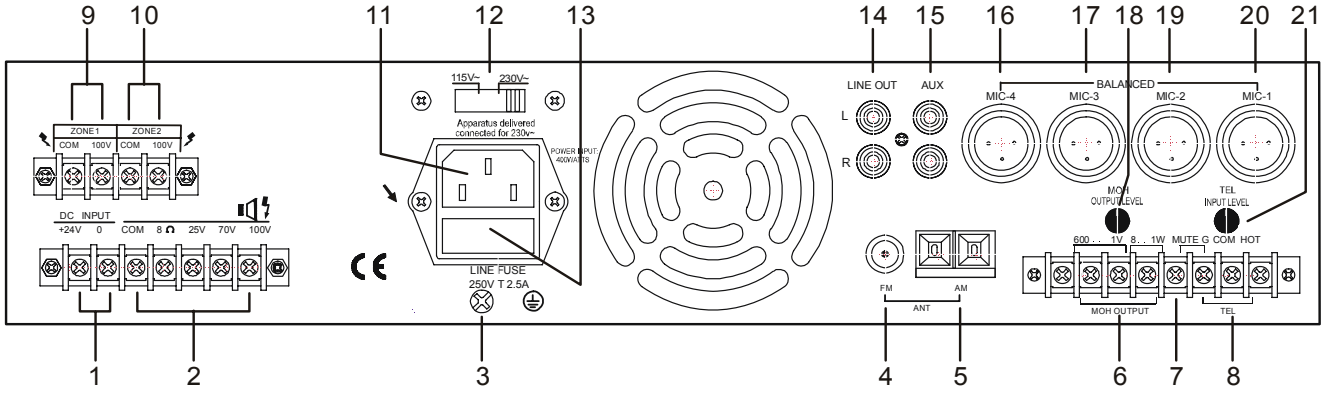
ENSURE that there are no short circuits on the loudspeaker line before connecting to the amplifier.

FRONT PANEL Mixer Amplifier with music sources



1. Mic1 input (6.3mm phone jack/balanced).
2. Mic1 volume control.
3. Mic2 volume control.
4. Mic3 volume control.
5. Mic4 volume control.
6. Music Source Select (AUX/TUNER/CD-TAPE/OFF).
7. Line (Music Source) volume control.
8. Master tone control (Bass).
9. Master tone control (Treble).
10. Master volume control (all inputs except TEL).
11. Power ON/OFF switch.
12. VU meter (LEDs for -20, -6, 0dB)
13. Tuner display.
14. Memory keys.
15. AM/FM selection key.
16. Frequency up/down key.
17. Scan key.
18. Set memory key.
19. Shift key.
20. CD or Cassette player unit built in slot.
21. Zone 1 select switch button.
22. Power on indicator LED.
23. Zone 2 select switch button.

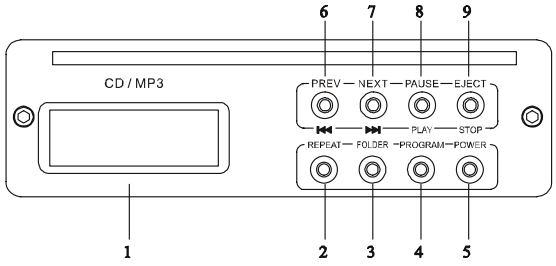
REAR PANEL



1. 24V dc power supply terminals.
2. Loudspeaker output terminals(8Ω /25V/70V/100V)
3. Earth connection screw.
4. FM antenna input.
5. AM antenna input.
6. MOH (music on hold)output terminals.
7. Manual muting terminals
8. TEL input terminals.
9. Zone 1 loudspeaker output terminals.
10. Zone 2 loudspeaker output terminals
11. Mains input socket.
12. Mains voltage 115v/230v switch.
13. AC fuse holder
14. Line output (2×RCA phono).
15. Auxiliary input (2×RCA phono).
16. Mic-4 input (XLR/balanced with selectable phantom power).
17. Mic-3 input (XLR/balanced with selectable phantom power).
18. MOH output level control
19. Mic-2 input (XLR/balanced with selectable phantom power).
20. TEL input level control
21. Mic-1 input (XLR/balanced with selectable phantom power).

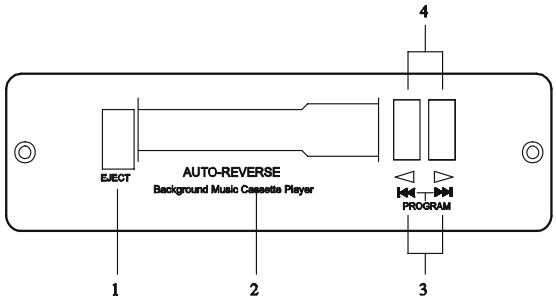
CD PLAYER UNIT

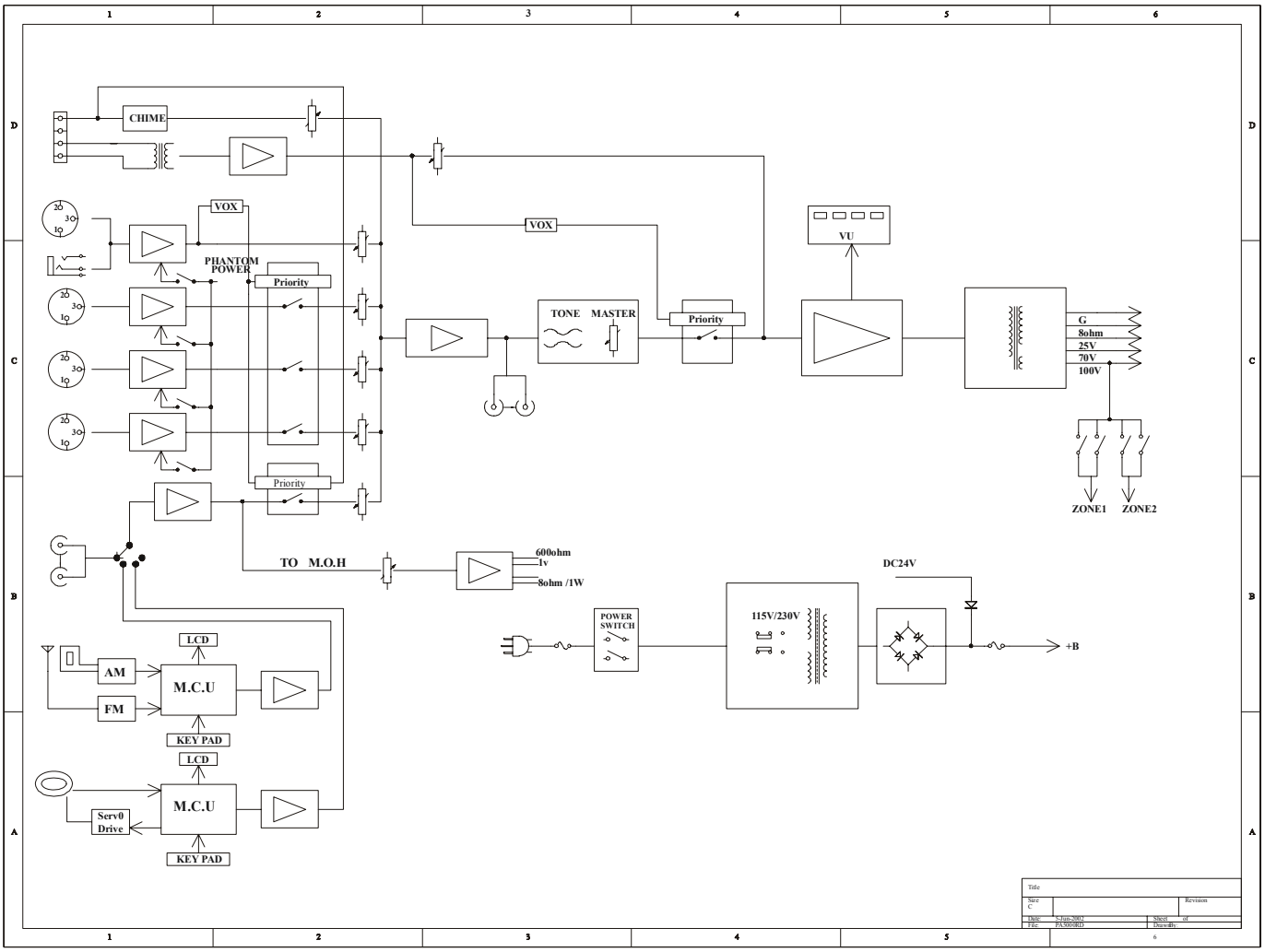
1.CD display.
2.Repeat key.
3.Folder key
4.Program key.
5.Power on/off key.
6.Previous key.
7.Next key.
8.Play/pause key.
9.Stop/eject key.

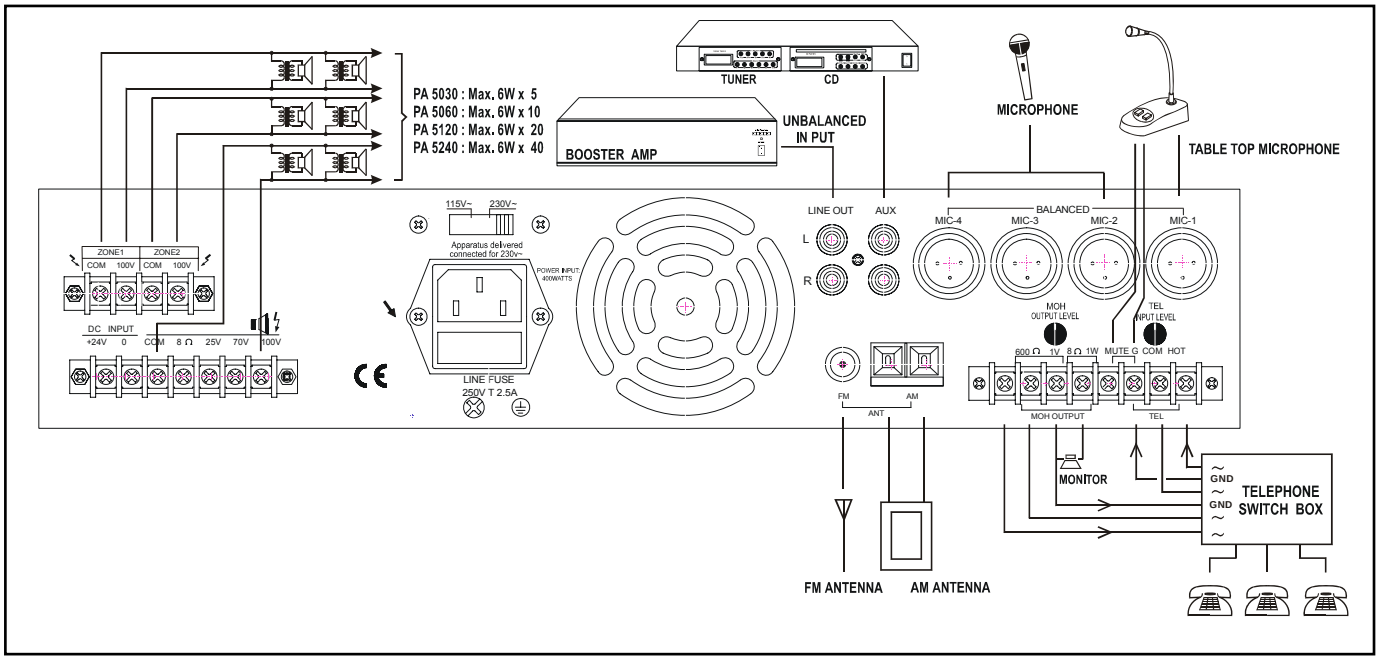


CASSETTE PLAYER UNIT

1. Eject control.
2. Cassette slot.
3. Direction indicators
4. Fast wind controls.







Mains Connection

The supply transformer has been designed for use either 115Vac or 230Vac, Selected by slide switch on rear panel. The amplifier is factory set at 230Vac mains Voltage.

Battery Connection(24Vdc)

When using external batteries, earth the amplifier via the screw terminal because of the high voltages present. Electrical stability of the system is increased by earthing the case.

NOTE: The connection cable must be fitted with an in-line fuse, quick blow type F15A. When connecting batteries please ensure correct polarity.

Microphone Connections

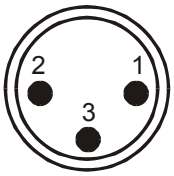
Mic1 input is either a balanced standard 1/4” stereo jack on front panel or XLR on the rear panel (With selectable phantom power). Wiring is as follows:

XLR (Balanced Operation)

Pin1 : Screen

Pin2 : Signal (live)

Pin3 : Signal (return)

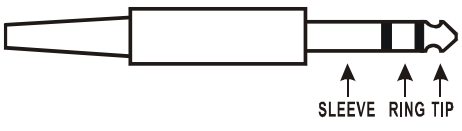


1/4” Stereo Jack Plug

Tip : Signal (live)

Ring : Signal (return)

Sleeve : Screen



Mic1 input has VOX priority which will override Mic2-4 and Aux (Line) input signals but NOT the TELEPHONE input.

Mic2-4 inputs are XLR with selectable phantom power located on the rear panel and wired as above. The phantom power is factory set to off and can be enabled as follows:

1. Remove power lead from the AC wall socket.
2. Remove top cover.
3. Locate the link pins (Marked jump 1,2,3 & 4) on the PCB behind each microphone XLR input socket.
4. Connect the black shorting plug to the centre pin and ON position to enable the Phantom power

Chime

Switching the manual muting terminals on the rear panel will activate the chime function ("Ding-Dong" attention signal preceding a call).The default volume of the chime is pre-set at the factory and is adequate for most applications).

Telephone Connection

This input is for emergency announcements/signals and is not effected by the master volume control. Input level can be set by rotary control on the rear panel. The TEL input has the highest priority and will override all other inputs.

MOH (Music On Hold) Output Connection

Two MOH output are provided on the rear panel.

(i) 600Ω/1V. to feed an EPABX system. Output level adjustable Please consult your EPABX handbook to utilise this facility.

(ii) 8Ω, 1W for monitoring applications.

Aux (Line) Connection

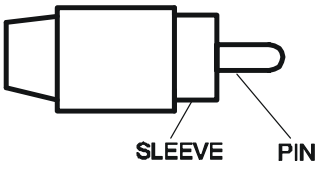
The equipment provides an auxiliary input which may be used for connecting other signal sources such as a Radio Tuner, CD or Cassette player. Line level Control is shared with the built-in Turn and CD. A rotary switch is located on the front panel for selection of Tuner, CD/Cassette, Aux and OFF. The line level control operates on each of the input sources. To operate select the desired music source using the rotary switch and turn the "Line "control clockwise to increase the volume or anticlockwise to reduce the volume.

The Aux input sockets are standard RCA phono, two sockets are supplied and these are linked together internally, this allows stereo signal source to be used without the need to obtain a special lead, however you may wish to check with the manufacturer of the signal source to ensure that no damage will result if the left and right output channels are put in parallel.

RCA Phono plug connection

Sleeve - Screen

Pin - Signal



Line Output Connection

This equipment provides two booster output sockets which can be used to drive a booster amplifier in situations where more power is required. Connection is via RCA phono pluge. (See above)

Loudspeaker Connection

This equipment provides four different types of loudspeaker output, these are 100V, 70V, 25V line and low impedance, you can only use one of these output at any one time, any attempt to use two or more of these may result in damage to the amplifier.

100V Line

These loudspeakers are most commonly used in the Europe for PA distribution. When the amplifier is at full output 100V RMS will be present at the output terminals. Only use 100V line loudspeakers with this output. All loudspeakers are wired in parallel and the sum of the power tapping of each loudspeaker must not exceed the rated output of the amplifier, Ideally, due to the nature of loudspeaker and transformer impedance's. it is advisable not to load the amplifier to greater than 70% of its rated output when using music sources.

Zone 1 & 2

In addition to the normal 100V line output there are two sets of 100V line terminals for 2 zones which can be selected using the push buttons on the front panel

70V / 25V Line

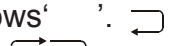
This system is common in the USA, it operates on exactly the same principals as 100V line except that at rated output the amplifier will have 70V RMS or 25V RMS on its output terminals.

Low Impedance (8Ω)

This output allows connection of standard low impedance loudspeakers, the minimum load impedance must be 8Ω , when two or more loudspeakers are used ensure that they are wired in such a way that the load impedance is between 8Ω and 16Ω .

CD OPERATION

1. Select CD mode with LINE select switch.
2. Press POWER key on CD player
3. Load disc (label side up) into player and PLAY starts automatically.
4. Press PAUSE key and symbol **II** appears on the display and play is suspended.
   Press pause key to resume play.
5. Pressing ▶▶ key selects the next track and ◀◀ key the previous track
6. Press the FOLDER key, FOLDER appears on the display and press the CD previous key or the CD next key.

7. By repeatedly pressing the CD repeat key you select the following modes:
   -Playing all tracks and stop.
   -Repeating the current track. The display shows ‘1’.
   -Repeating all tracks within the current folder. The display shows‘ ’. 
   -Repeating all tracks. The display shows‘  ’.
   -Random playing of tracks in all folders). The display shows ‘RANDOM’.

8. Programming the CD player – in STOP mode.
   (i) Press the PROGRAM key
   (ii) Use the next ▶▶ or previous ◀◀ key to select a track.
   (iii) Press REPEAT key to memorise the selected track in your program. Repeat stages (ii) and (iii) to program a maximum of 20 tracks.
   (iv) Press the PLAY key to start the program (Note: The program repeats itself until the CD player is stopped).

TUNER OPERATION

For FM reception connect a dipole aerial using 75Ω coaxial to the socket at the rear of the unit. Connect the supplied antenna to the AM spring loaded terminals.

1. Select TUNER mode with the Line select switch.
2. Select AM or FM with the BAND key.
3. Use the UP/DOWN keys to set a frequency manually or the SCAN key to automatically search for the desired station.
4. To program a station press the ME (Memory) key.
5. Press a MEMORY key (M1 to M5) or SHIFT key and memory key (M6 to M10) to store a frequency.

Operation The Cassette Player

The cassette mechanism fitted into the cassette module is an auto-reverse type which detects when the end of the tape has been reached and will automatically reverse the direction of the tape and play the opposite side of the cassette, this function will continue until the cassette is removed from the module.

NOTE: Due to the abrasive nature of cassette tapes some oxide from the tape will be deposited on to the cassette mechanism and therefore the mechanism will need cleaning at regular intervals. Cleaning cassettes can be purchased from most good hi-fi stores. DO NOT use C120 cassettes.

Inserting a cassette

The cassette should be inserted edge first with the exposed tape on the right-hand side, push the cassette into the mechanism until the cassette drops into position.

Removing the cassette

Firmly press the eject button, the cassette will be ejected.

Fast Wind

The cassette can be fast wound in either direction to any position on the tape by pressing one the of the fast wind buttons.

Direction Change

The side of the cassette currently playing can be changed to play the other side of the cassette at any time by pressing both fast wind buttons simultaneously.

Technical Specifications

Type		PA Amplifier with Music Sources	
Model		**MMA-120 / MMS-120**	**MMA-240 / MMS-240**
Supply	Mains Voltage	AC 115V/230V ,50/60HZ ±10% , Switchable	
	Battery Voltage	DC 24V (max.10% deviation)	
Output power	Max	180W	360W
	Rated	120W	240W
Outputs		Speaker outputs: 8Ω ,25V,70V,100V Line out:600Ω ,1V MOH output : 8Ω 1watt / 600Ω ,1V balanced.	
Inputs		Mic1:250Ω ,1mV,balanced with phantom power selectable (Jump 1) Mic2:250Ω ,1mV,balanced with phantom power selectable (Jump 2) Mic3:250Ω ,1mV,balanced with phantom power selectable (Jump 3) Mic4:250Ω ,1mV,balanced with phantom power selectable (Jump 4) Aux:47KΩ ,200mV,unbalanced. TEL: 0.1~1V,600Ω ,adjustable, balanced	
Frequency response		60~15K HZ ±3db	
Total harmonic distortion		Less than1% at 1KHZ,rated power	
Signal to noise ratio		All Volume Controls C.C.W : 75dB below rated power. Mic1~Mic4:60 dB below rated power Aux:70 dB below rated power TELI:70 dB below rated power	
Tone Controls		Bass : ±10 dB at 100HZ Treble: ±10 dB at 10KHZ	
Controls		Mic1~Mic4 volume control Line(Aux/Tuner/CD/Cassette) volume control Master volume control TEL input level control MOH output level control Tone controls (Bass,Treble) Zone1.Zone2 push bottom AC 115V / 230V Voltage Selector Switch.	
Indicators		Power indicator (LED),output level meter (3 LEDS)	
AC power consumption		400 watts	760 watts
DC power consumption		8A	16A
Chime		Two tone chime (Ding-done attention signal preceding a call).	
Priority		Priority level (Using for Mic1~5, the 5-pole DIN connector or phone jack) TEL / Emer Mic1 Mic2 Mic3 Mic4 Aux / Tuner/ CD-Tape 3 2 1 1 1 1	
Dimentions (H x W x D)		88 ×430 ×300 mm	88 ×430 ×385 mm
Weight		Approx : 10.0kg	Approx : 13.0kg
Color		Black	
Mounting options		Table top or, 19” rack mountable	
Module Option		CD5: CD player unit TM-3 : AM / FM Digital Tuner Unit	