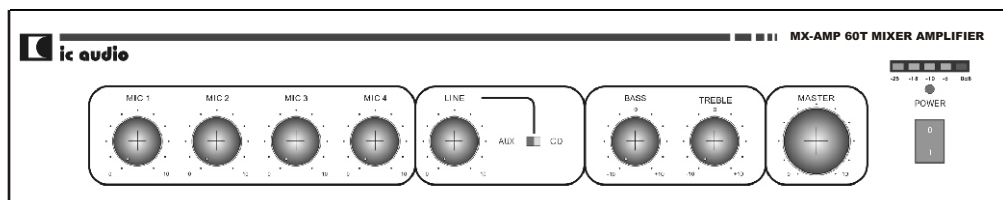


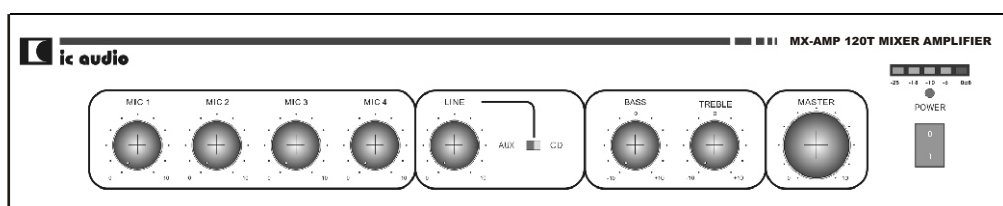
User manual

Desktop

MIXER AMPLIFIER MX-AMP 60T

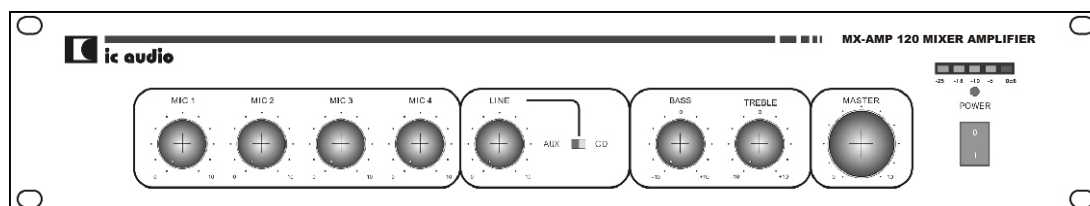


MIXER AMPLIFIER MX-AMP 120T



19-inch-rack mounting

MIXER AMPLIFIER MX-AMP 120



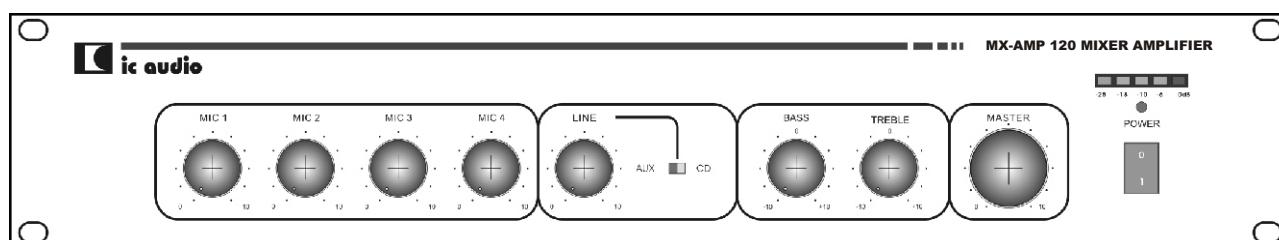
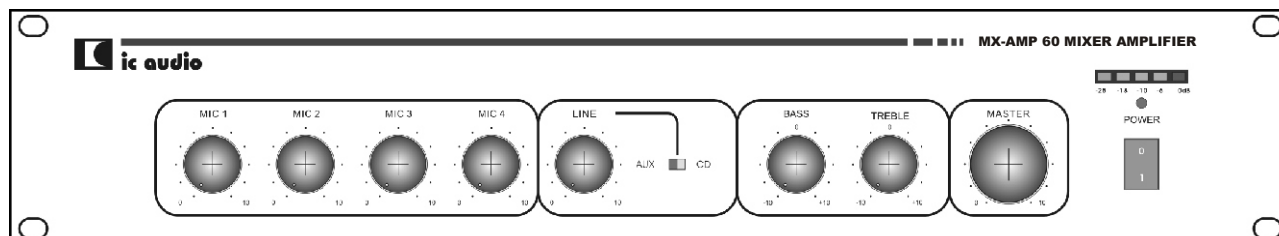
... to make people listen

ic audio

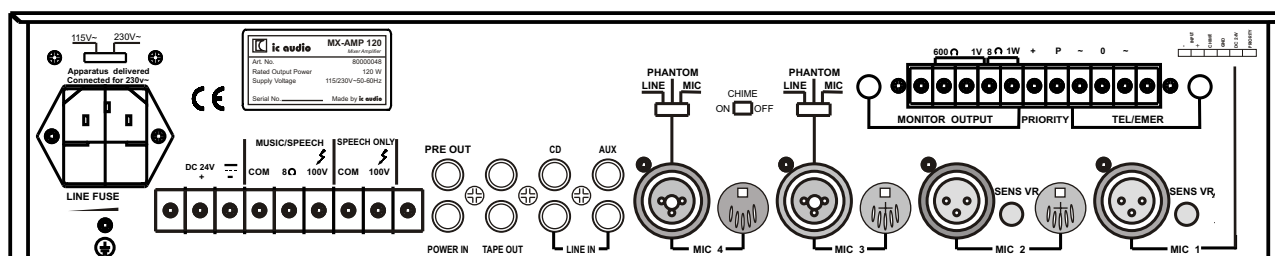


Status 02/2006

Mixer-Amplifier - Front -



Mixer-Amplifier - Rear -



Preperation

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Device Functions - Rear side -

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- Unpacking
- Safety Instructions
- General Informations
- Rack-Mounting
- Cooling
- Positioning Mixer Amplifier

Unpacking

Please note the unpacking instructions

Safety Informations

Please note the safety instructions before the connecting the MX-AMP 60 and MX-AMP 120

General Informations

Cooling and instructions for the installation

Rack-Mounting

Informations about the right rack-mounting

Cooling

Please note the ventilation - cooling guidelines

Positioning Mixer Ampifier

Please note the positioning of the Mixer - Amplifier

Unpacking

Please verify if the following parts were delivered:

- line cord
- mounting foots pre-assembled

Safety instructions

The wires of the main power line have the following colours:

GREEN and YELLOW: (E)
BLUE: (N)
BROWN : (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 Informations

- 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.

Rack-Mounting

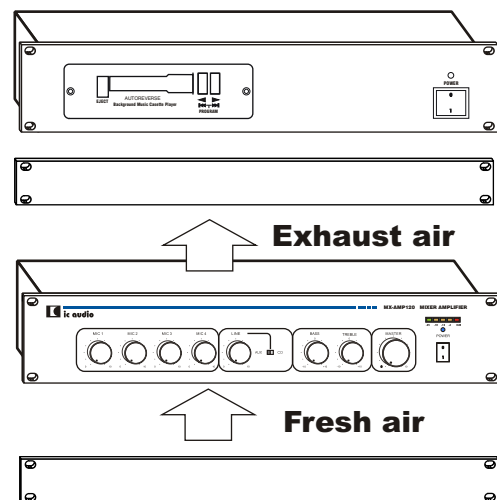
The housing of the Mixer-Amplifier is a 19 inch rack standard construction. Please check if you have enough space for cooling the amplifier. For the optimum mounting in the 19" rack you should fix the mixer - amplifier in the rack-frame with 4 screws.

Cooling

The mixer amplifier pulls fresh air through the small holes in the bottom sheet and pushes the exhaust air through the long holes in the top sheet. Please make sure that the internal space of the rack system is cooling and you have a room maximum temperature of 40°C..

We recommend to install a cooling system at the rear site of the racksystem to support the transport the exhaust air in the racksystem.

 **40°C**



Positioning Mixer Amplifier

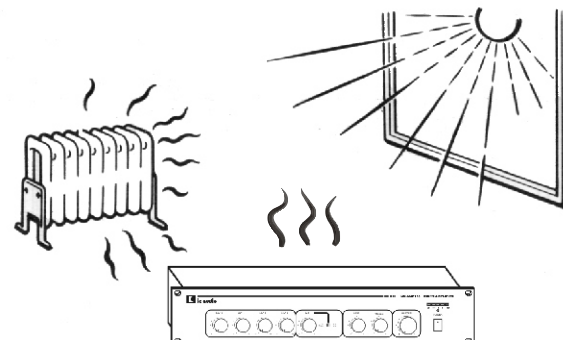
Put the Mixer Amplifier in a position with enough space enough fresh air to minimise the heat in the system.

Do not place the Mixer Amplifier close to of heat sources or a heater.

Do not expose the Mixer Amplifier sunlight or heavy dust.

If you use the Mixer Amplifier as a tabletop unit please make sure that the 4 feet are mounted on the bottom side.

false



- Paging Microphone Functions

- Alarm Function

- Common Function

- Inputs

- Outputs

Paging Microphone Functions

- 4 Microphone inputs with different Priorities
- Pre-chime hook up
- Sensitivity Control for Microphones

Alarmfunctions

- 2 split Output zones
- Music muting
- Pre-Amplifier Output

Common Function

- 115V and 230V Mains Connection
- 24V Battery Connection
- Monitor Output

Inputs

- CD
- AUX
- PRE-AMP
- Telephone/Emergency Connection

Outputs

- 100V - Speaker of the first Zone
- 8ohm - Speaker of the first Zone
- 8ohm - For Monitor speaker
- 100V - Speaker of the second Zone
- TAPE
- LINE
- PRE-AMP

Device Functions

- Front side -



- LED - Display
- ON/OFF - Switch
- Microphone Controller
- LINE - Controller,
Switch AUX/CD
- Bass and Treble Controller
- Master Controller

LED - Display

Display for the activation

ON/OFF - Switch

Setting - up the Mixer-Amplifier

Microphone Controller

Controller for the Microphone volume

LINE-Controller, Switch AUX/CD

Volume Control of the acoustic signal source

Bass and Treble Controller

Control of the high and deep frequency

Master Controller

Control of all Signals

Device Functions

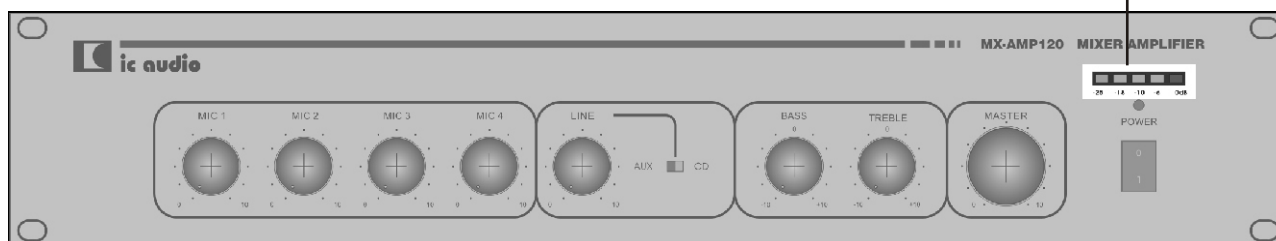
- Front side -



LED - Display

The LED-Display shows the recording level of the Mixer-Amplifier. The green LEDs show the range in which the MX-AMP could be operated permanently. The red LED shines only when running in full conduction. This zone is not advisable for long-term usage.

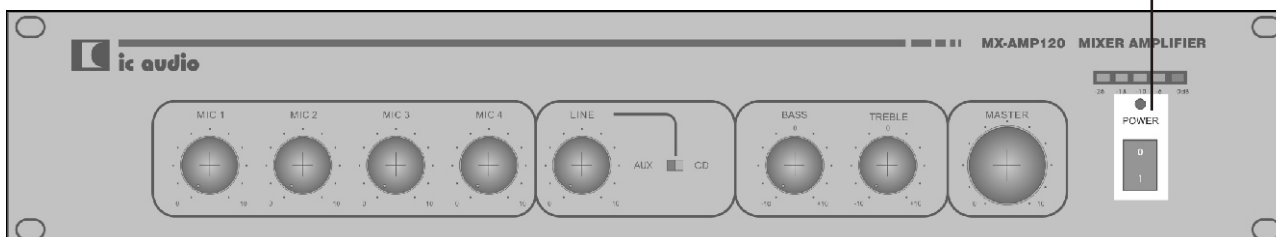
LED - Display



ON/OFF - Switch

With this switch you turn on the apparat.
Position 1 = apparat is on
Position 0 = apparat is off
After turning the machine on, the LED is shining blue. Before turning the machine on, the Master controller should be set to a low volume.

ON/OFF -Switch



Device Functions

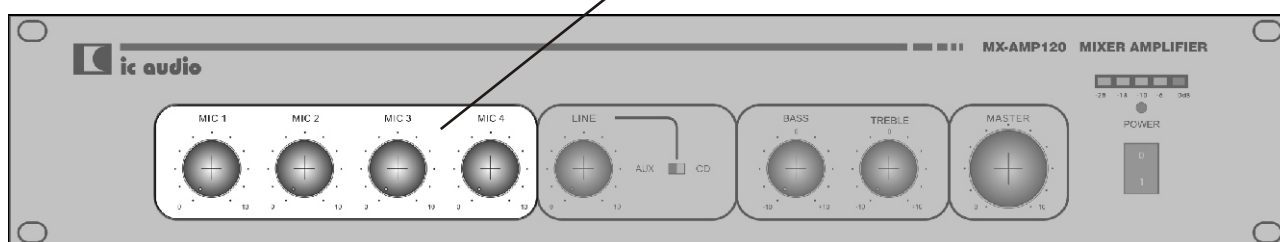
- Front side -



Microhphone Controller

Microphone Controller

With the Microphone Controller you can control the volume of the separate microphones.



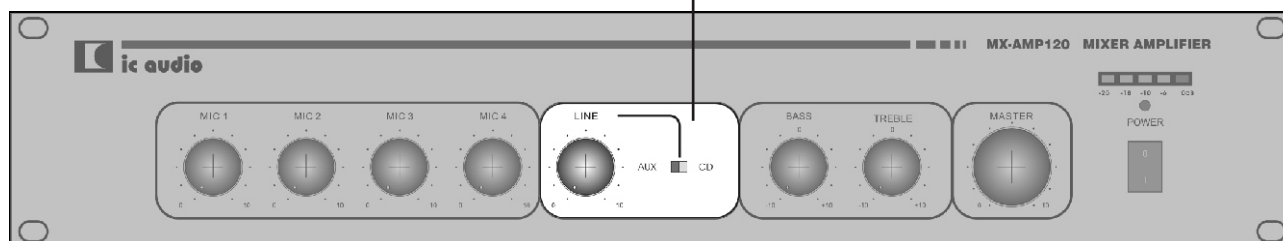
LINE - Controller, Switch AUX/CD

With the LINE - Controller you can control the volume of the connected signal source.

The source can be a CD-Player or a cassette recorder.

You can change the function of AUX/CD with the switch between the LINE and the BASS controller.

LINE - Controller

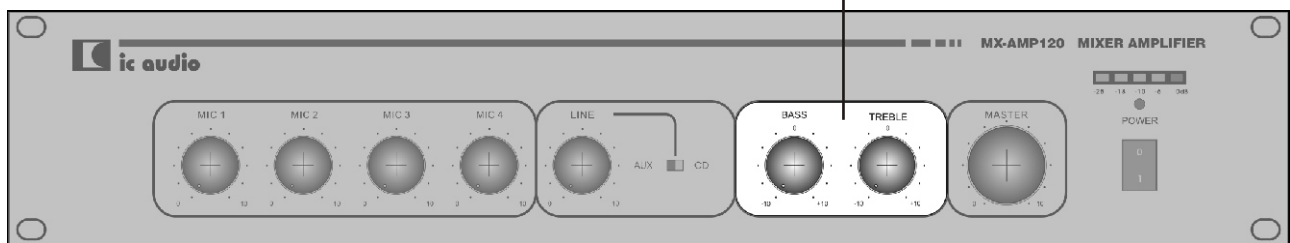


Bass and Treble Controller

With this control you can adjust the reproduction of deep and high frequencies.

The bass control lifts or lowers frequencies near to 100Hz at 10dB. The treble-control has the same effect on at frequencies near to 10.000Hz.

Bass and Treble Controller

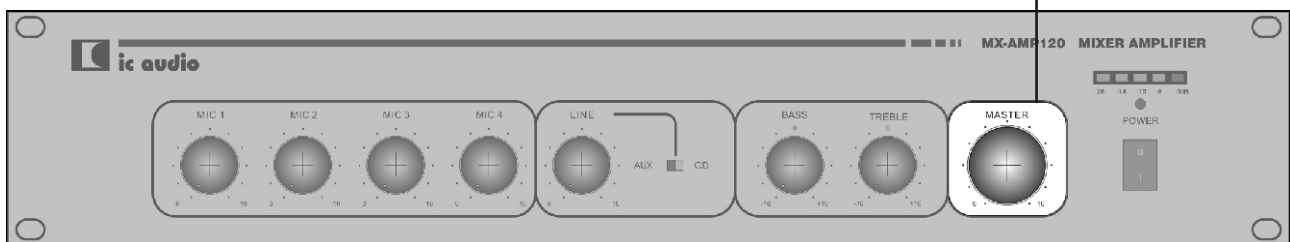


Master Controller

The master control drives the volume of all signals being processed by the amplifier.

Signals of the TEL/EMERgency input excepted are. This is made by a poti on the back side and cannot be set to zero.

Master Volume Controller



Device Functions

- Rearside -



- 115V and 230V Mains Connection
- 24V Battery Connection
- 100V Speaker Output
- Disjoined Announcement Zones
- Connection with One Zone
- 6-pole Microphone Input
- Priorities
- Looping Devices
- TAPE OUT / LINE IN
- LINE IN (CD/AUX)
- Microphone input 1-4 wit XLR-Jack
- Microphone input 1-4 wit DIN-Jack
- Sensitivity Control for MIC's
- Switch for LINE-PHANTOM-MIC
- CHIME ON / OFF
- MONITOR OUTPUT
- Emergency Input
- Top view of all functions

115V and 230V Mains Connection

Selector to adapt the mains connection

24V Battery Supply

Connection to ups

100V/8ohm Speaker Output

Terminal for 100V/8ohm - speakers

Disjoined Announcement Zones

Driving different zones in priority settings.

Connection with One Zone

Driving only one zone

6-pole Microphone Input

Connection for max. 12 Microphones

Priorities

Effects of different priority statuses

Looping Devices

Connection to and from an other device

TAPE OUT / LINE OUT

Terminal for LINE OUT

LINE IN (CD/AUX)

Terminal for Line IN devices

Microphone input 1-4 wit XLR-Jack

Connection with XLR-Jack

Microphone input 1-4 wit DIN-Jack

Connection with DIN-Jack

Sensitivity Control for MIC's

Adjustment of sensitivity
Controlling the maximum volume

Switch for LINE-PHANTOM-MIC

Switching the Signal-Source

CHIME ON / OFF

Switching the chime on and off

MONITOR OUTPUT

Connection of monitor devices

Emergency Input

Alarm functions and connection

Top view of all functions

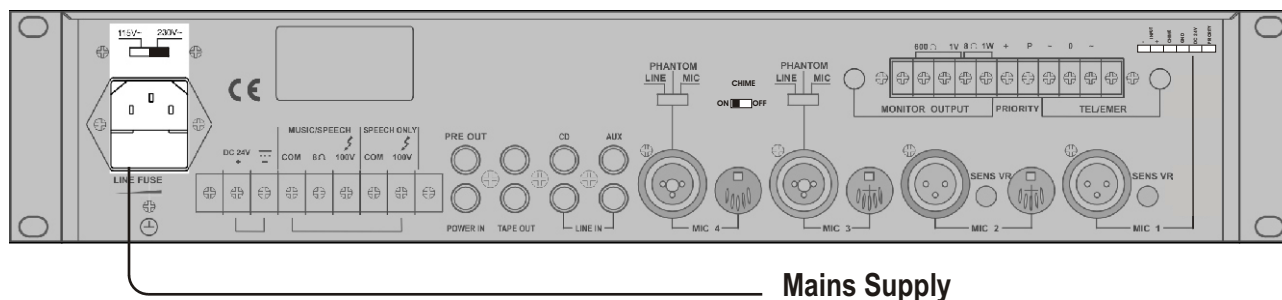
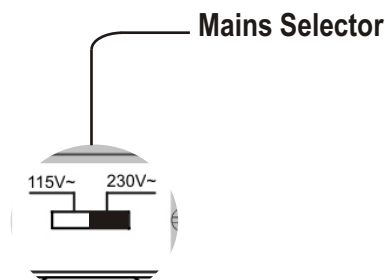
Diagram connected with all possible devices.

Device Functions - Rearside -



115V and 230V Mains Connection

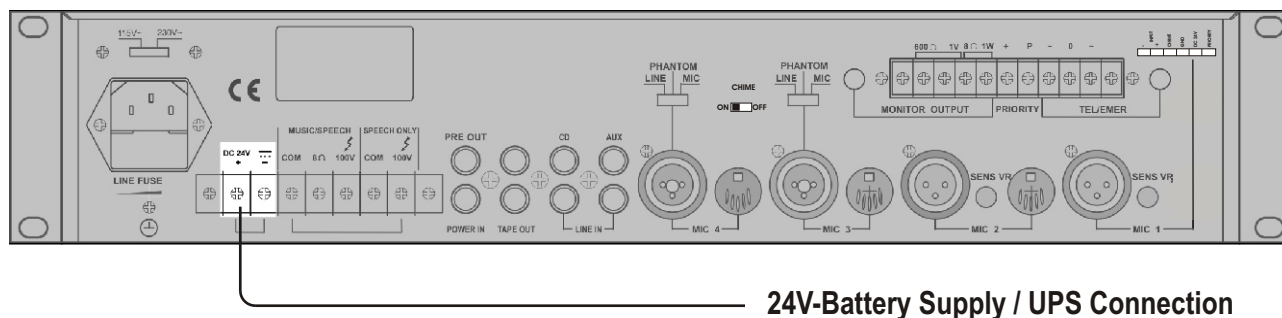
The amplifier is factory set at 230 V(AC) mains voltage.
You can set the switch to 115V if necessary by pushing the slide switch from right to left.
A before please disconnect the mains cable.
Ensure yourself that the device is set to the local mains voltage before you connect it.



24V-Battery Supply

You can also drive the device with 24V(AC).
This is useful in case your mains connection is broken down and you can bypass this with an uninterruptible power supply (UPS).
In this case no manual switching is interrupted at the amplifier. As soon the mains connection, the device is automatically driven by external battery power, regardless to the position of the ON/OFF-switch.
Note: The connection cable must be fitted of an in-line fuse quick blow type F15A.

Electrical stability of the system is increased by earthing the case.



Device Functions

- Rear side -



100V Speaker Output

The amplifier provides two different Loudspeaker zones.

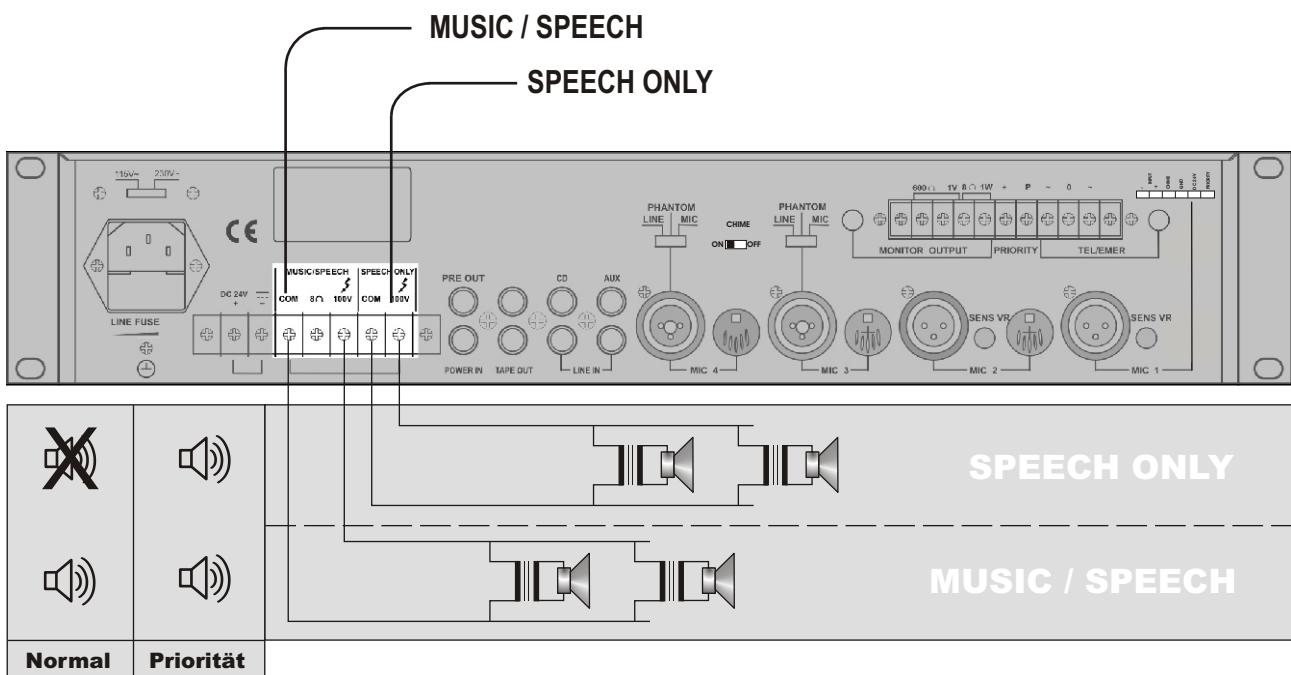
- The **Music/Speech** - Output gives an output at all times reproducing any signal input into the amplifier.
- The **Speech Only** - Output will only reproduce a signal during priority condition. This means that only the 'Ding Dong' chime and the signal from one of these microphone inputs will be presented to this output.

8ohm Speaker Output

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

Disjoined Announcement Zones

Some installation regulations require redundant zones for emergency announcements. With the **MX-AMP 60** and **MX-AMP 120** you can select a special speaker zone for emergency signals or announcements. In this case the MUSIK/SPEECH-Zone is mute and the signal is put on the SPEECH/ONLY-Zone.



Device Functions

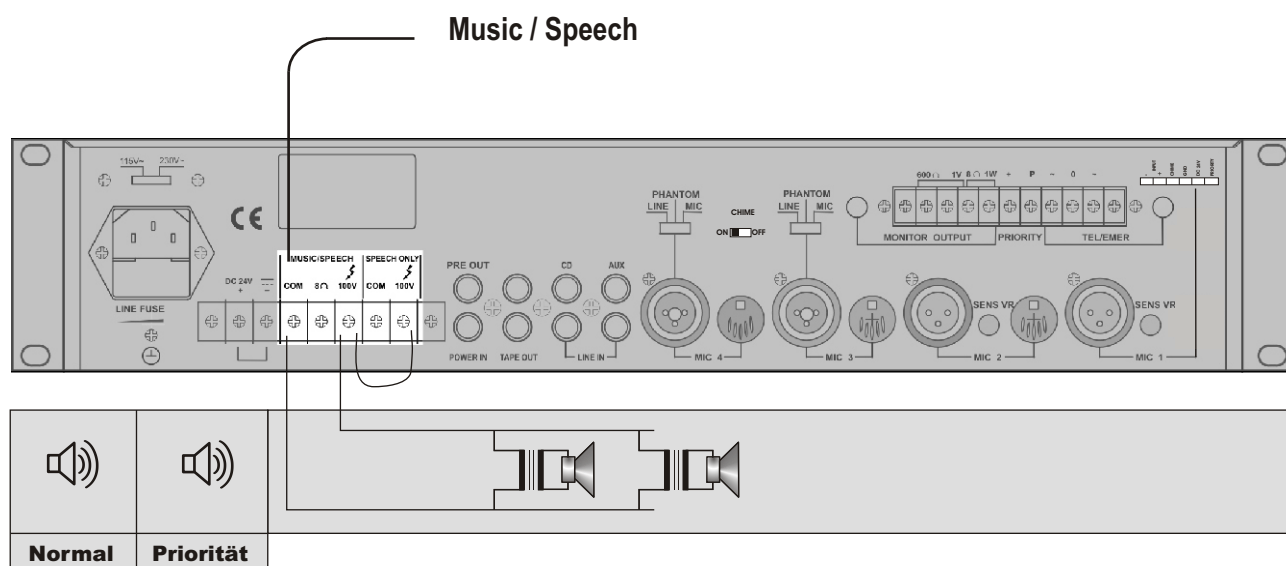
- Rear side -



Connection with One Zone

If you have only one speaker zone, you can bridge the two zones.

In the priority status you will have the announcement on the **MUSIC/SPEECH**-Zone and the music will fade out.



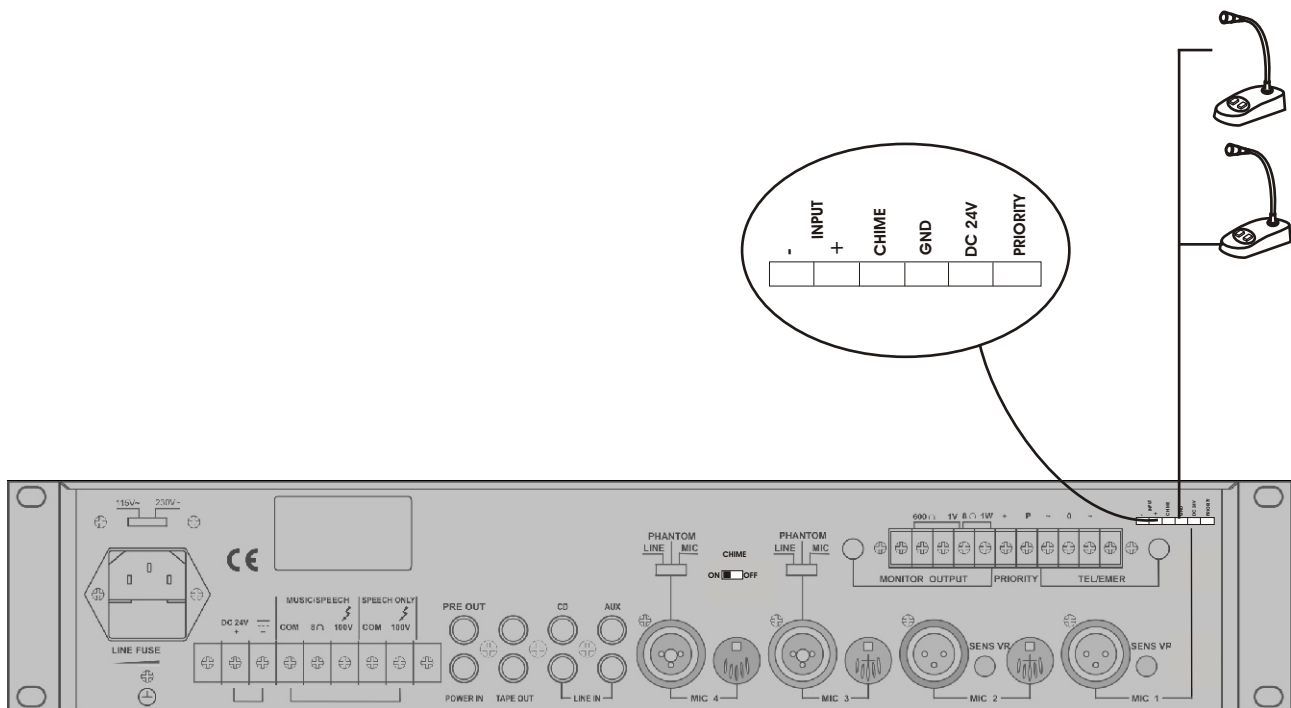
Device Functions

- Rear side -



6-pole Microphone Input

A 6-pole Microphone Input is located at the rear of the Mixer Amplifier. You can connect up to 12 microphones in parallel combination. The input signal (-/+) will reach from -40dB to 0dB and will be executed by an input-gauge-selector. To activate the chime you have to set an impulse to GND. The internal power supply will also deliver the power for the microphones, the maximum power consumption should not exceed 1,5 ampere. The priority-setting will activate the Speech-only at the 100V-output and overrules all other input sources.



Device Functions - Rear side -

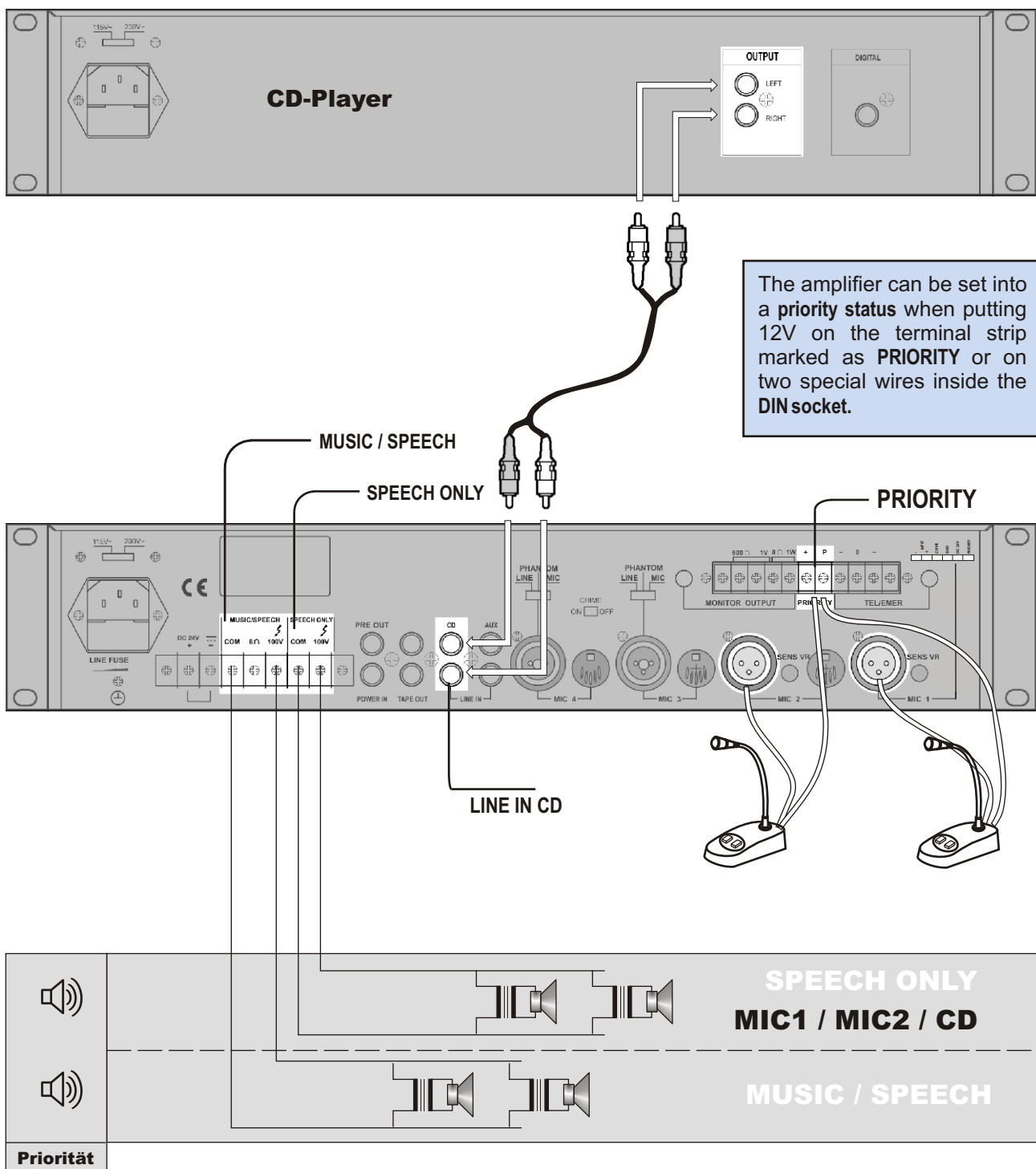


Priorities XLR-Jack

The following scenario shows one CD player and two paging microphones connected. When you put 12V- with any of these paging mics - on the terminal strip marked as priority, the amplifier will be set in the priority status.

Now the following happens:

The **MUSIC/SPEECH** zone, where CD music was playing, is muted and on the **SPEECH/ONLY** zone the signal of MIC1 will sound, that has now the highest priority.



Mixing amplifier-settings

SW401



A vertical rectangular switch with two positions. The top position is labeled 'ON' and the bottom position is labeled 'OFF'. A black dot is shown in the top position.

SW402



A vertical rectangular switch with two positions. The top position is labeled 'ON' and the bottom position is labeled 'OFF'. A black dot is shown in the top position.

Mixing Amplifier printboard inside

Setting for the use of nondynamic desktop microphones

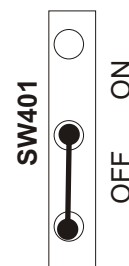
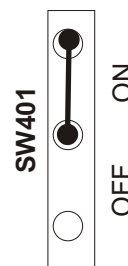
The **MX-AMP 60** and **MX-AMP 120** allows to connect 2 nondynamic microphones.

To guarantee service of nondynamic microphones at both ports MIC1 and MIC 2 you have to switch the card jumper setting (SW 401/SW402).

MIC1

MIC1 (see drawing **SW 401**)

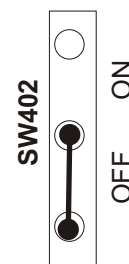
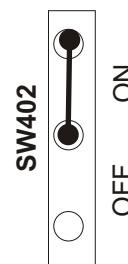
- Jumper set "on" - position (nondynamic desktop mics activated)
- Jumper set "off" - position (nondynamic desktop mics deactivated - "no function")



MIC2

MIC2 (see drawing **SW 402**)

- Jumper set "on" - position (nondynamic desktop mics activated)
- Jumper set "off" - position (nondynamic desktop mics deactivated)



Device Functions - Rear side/inside -



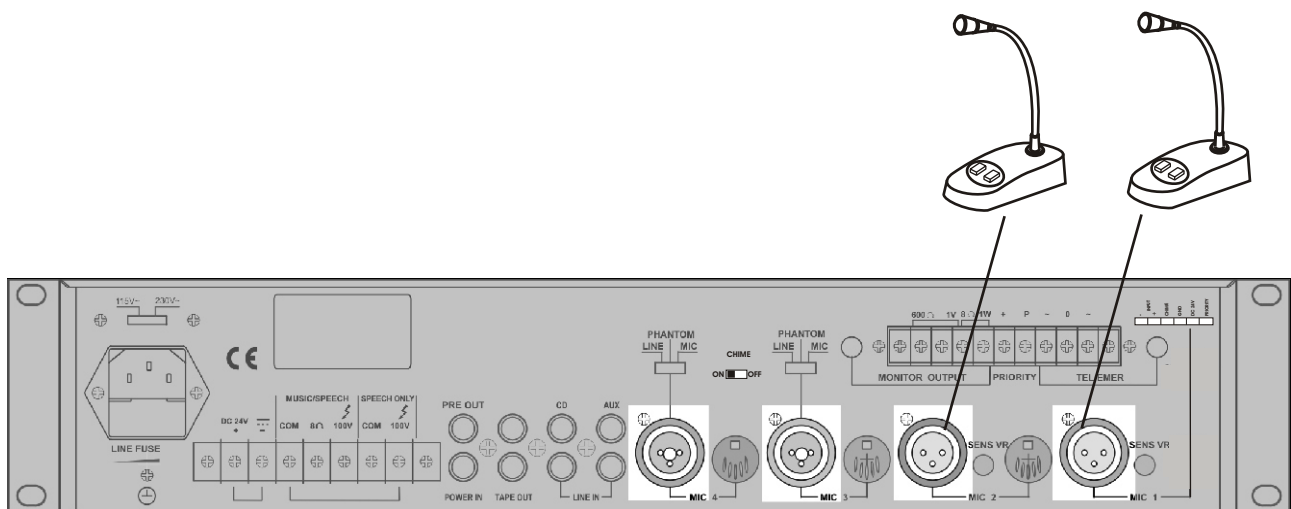
Desktop microphones - priorities

The first microphone MIC1 is prior to all others. MIC1 being in use automatically gates all other microphones. If music is hooked up to the system while an announcement is being made, the gate shuts off the music so that with the specific desktop microphone the announcement signal can go through.

This setting will remain until the announcement is ended.

Automatically then the music fades back in.

For the use of dynamic handheld microphones it is not necessary to set back the jumper position. Because of its dynamic character this type of microphone does not need phantom circuit/power.



ports for desktop microphones (MIC1 and MIC2, XLR ports)

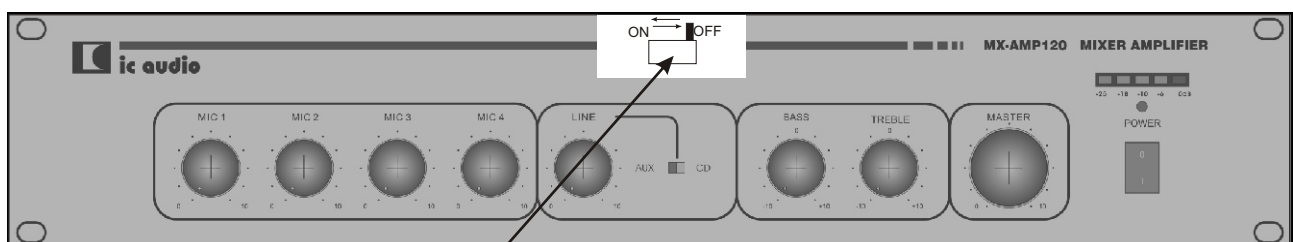
Priorities

The **MX-AMP 60** and **MX-AMP 120** allows you additionally to deactivate the mute control. This can be done by a slide switch inside the device.

The slide switch is placed directly behind the front panel at the upper edge.

The **MX-AMP 60** and **MX-AMP 120** is being delivered with the slide switch set "off" by default.

In order to activate the mute control the slide switch must be set "on".



slideswitch inside the device behind the front panel

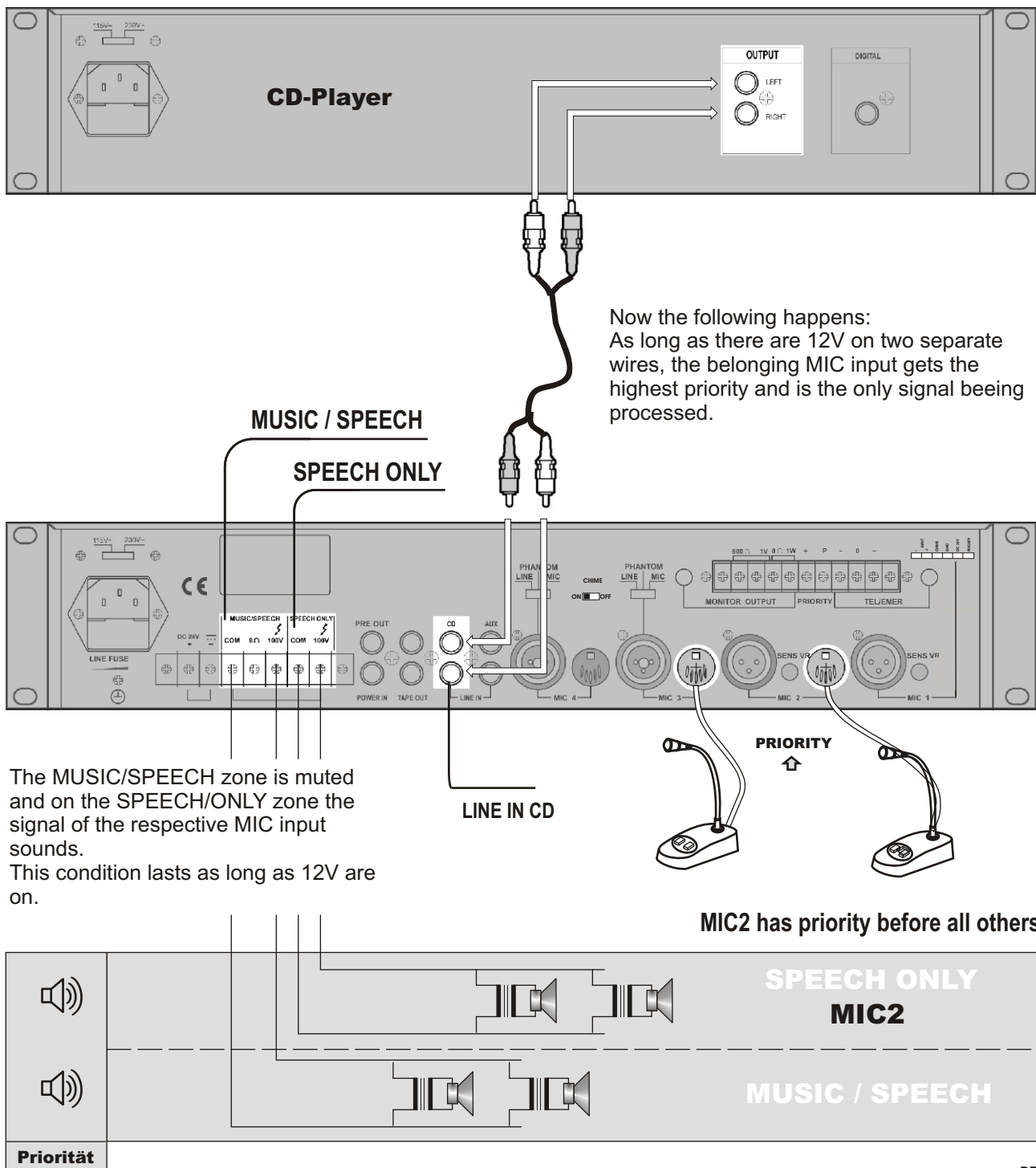
Device Functions - Rearside -



Priorities DIN-Jack

The following scenario shows again one CD player and two paging microphones connected. In contrast to the page before the paging mics are connected with the 5-pin DIN jack.

This plug shares 3 wires for MIC and 2 for 12VDC. For details see page 21.



Device Functions - Rear side -



Looping devices

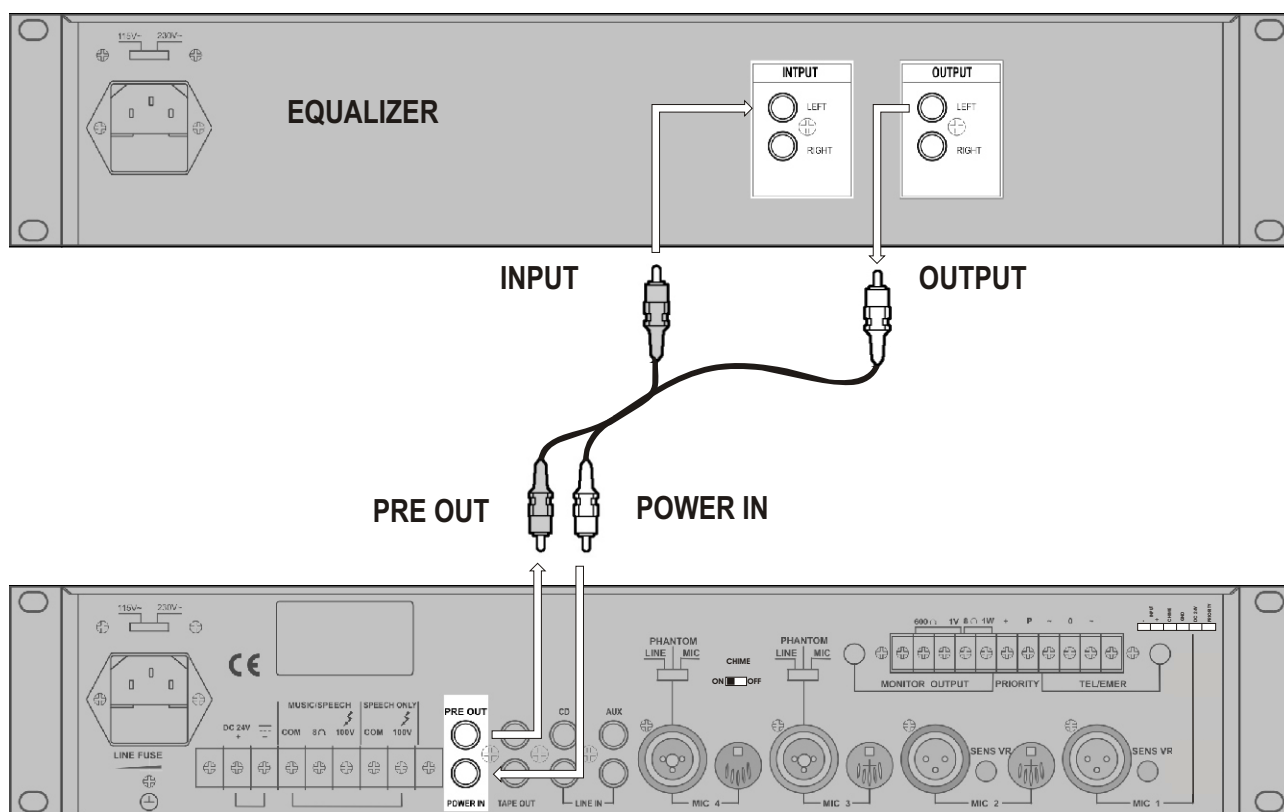
PRE OUT

You can connect an other amplifier if you use the pre out connection. This is helpful if you want to use the mixing features of this amplifier but need more power for your loudspeaker zone.

POWER IN

With the same Output you can loop devices like equalizers or controllers. Then you connect the PRE OUT with the Input of the appropriate device and that Output with the POWER IN of this amplifier.

See the wiring diagram.



Device Functions

- Rear side -



LINE OUT

These standard RCA phono sockets provide a mixed output suitable for connection to a tape or cassette recorder.



SLIDE SWITCH

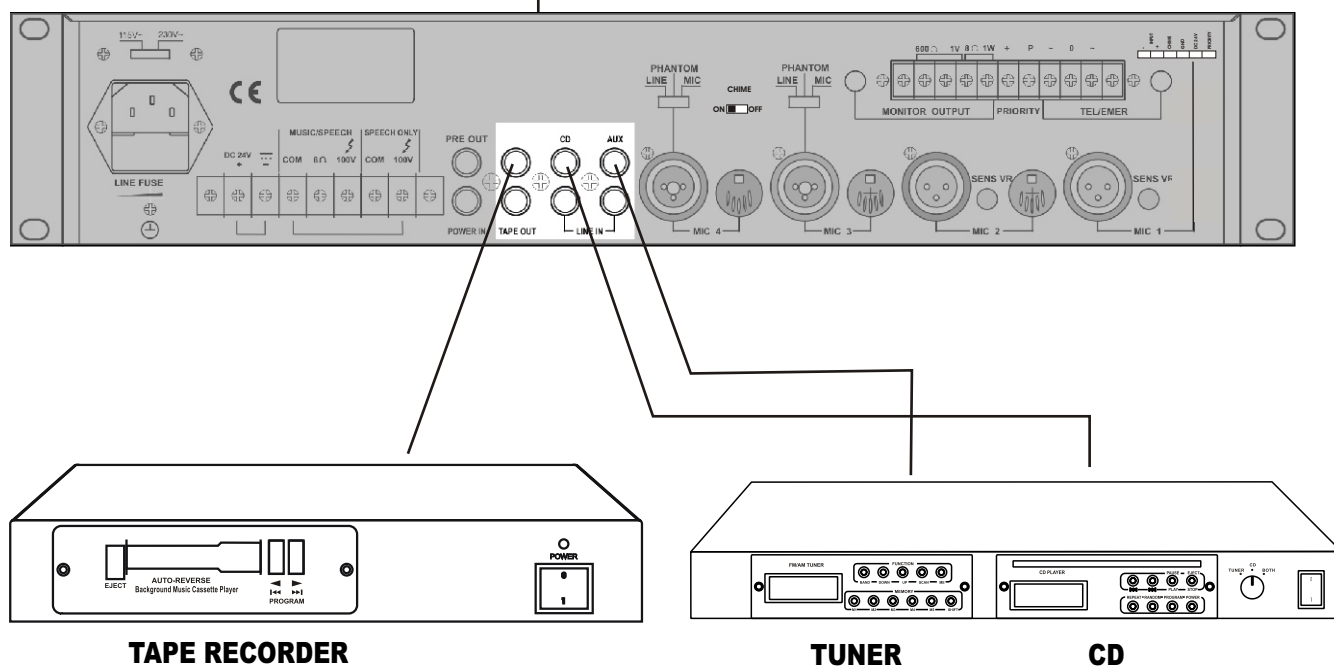
LINE IN (CD/AUX)

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

The AUX/CD 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.

LINE OUT:
LINE IN:

TAPE
CD/AUX



Device Functions

- Rear side -



Microphone input 1-4 wit XLR-Jack

On the back side of the amplifier you can connect 4 different microphones.

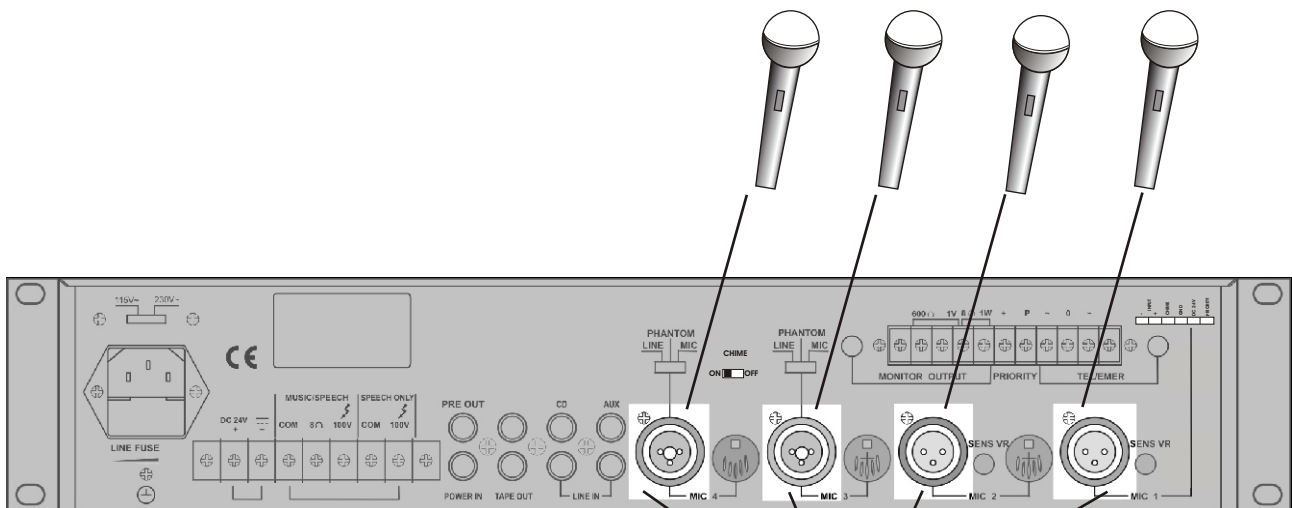
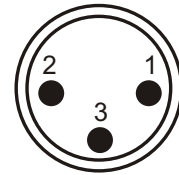


The first microphone MIC1 has PRIORITY and overrides MIC2-4. When speaking into MIC1 all other microphones will be muted.

The microphone inputs MIC3 und MIC4 provide phantom power selectable with a slide switch. With this you can also turn it to a Line Input.

XLR-INPUT

1: SCREEN
2: HOT
3: COLD



Microphone input (MIC1-4 with XLR-jack)

Device Functions

- Rear side -



Microphone input 1-4 wit DIN-Jack

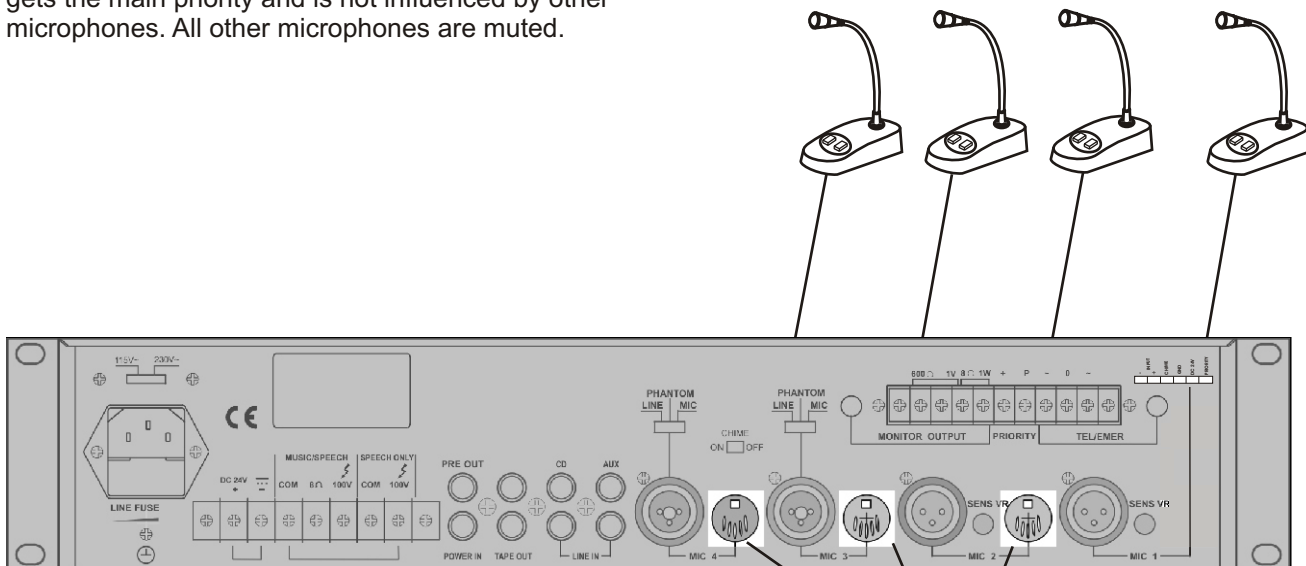
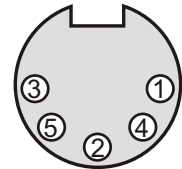
To get a full paging mic functionality you can connect the microphones with a **DIN-Jack**. Therefore you can use the pins 1-3 for the MIC and pins 4-5 to switch on the **PRIORITY** for that respective microphone input.



The difference between the priority caused by DIN-jack and the priority by XLR-jack with priority (12V DC) is, that in DIN case the respective microphone gets the main priority and is not influenced by other microphones. All other microphones are muted.

DIN-INPUT

- 1: HOT**
- 2: SCREEN**
- 3: COLD**
- 4: Priority 12V DC**
- 5: GND**



Microphone input 1-4 wit DIN-Jack

Device Functions

- Rear side -

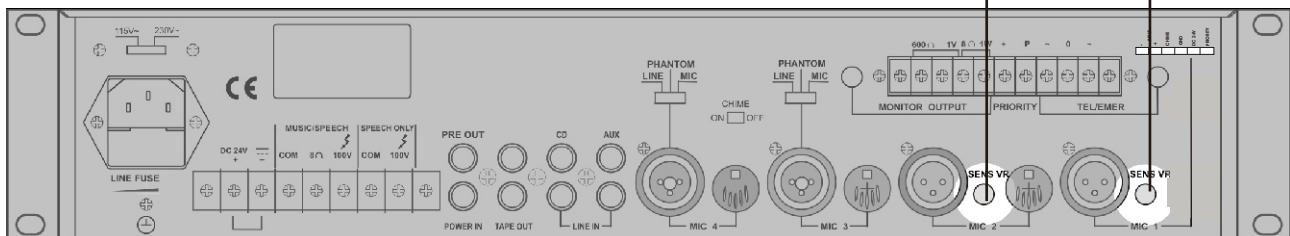


Sensitivity control for mics

With the sensitivity control you can adapt different microphones to one system. It is an additional poti before the signal gets into the amplifier. It can for instance be used to limit the maximum peak level of the microphone in order to protect the system or it is used to equalize the microphones among each other.

The sensitivity control is available for MIC1 and MIC2.

Sensitivity control for mics

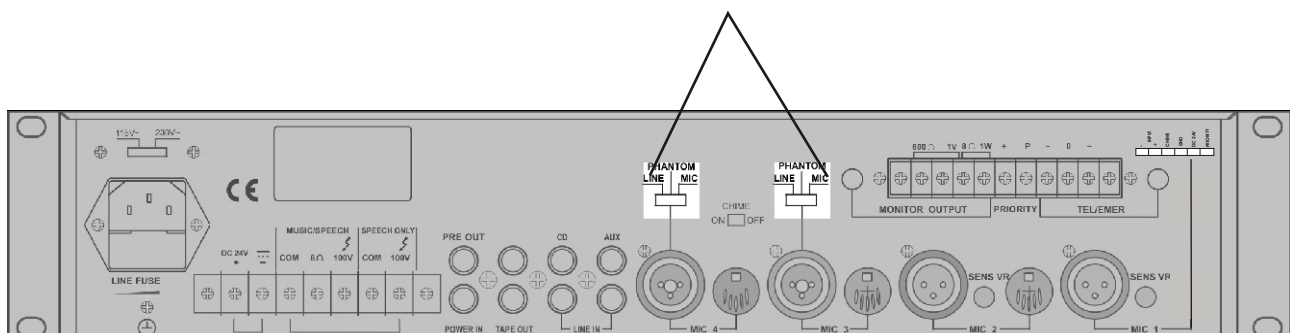


Selector for LINE-PHANTOM-MIC

The inputs MIC3 and MIC4 provide a selector where you can set the typ of input between LINE, Standard microphone MIC, or microphone that needs PHANTOM power. There are three selector positions:

- 1. MIC:** In this position the XLR-Socket is prepared to be connected with a standard microphone.
- 2. PHANTOM:** In this position you can connect it with a microphone that needs a 48V DC PHANTOM-power supply to work.
- 3. LINE:** In this position the socket is ready to work like a LINE-Input. It enables you to connect two additional devices like CD-players to the XLR-sockets.

Selector for LINE-PHANTOM-MIC



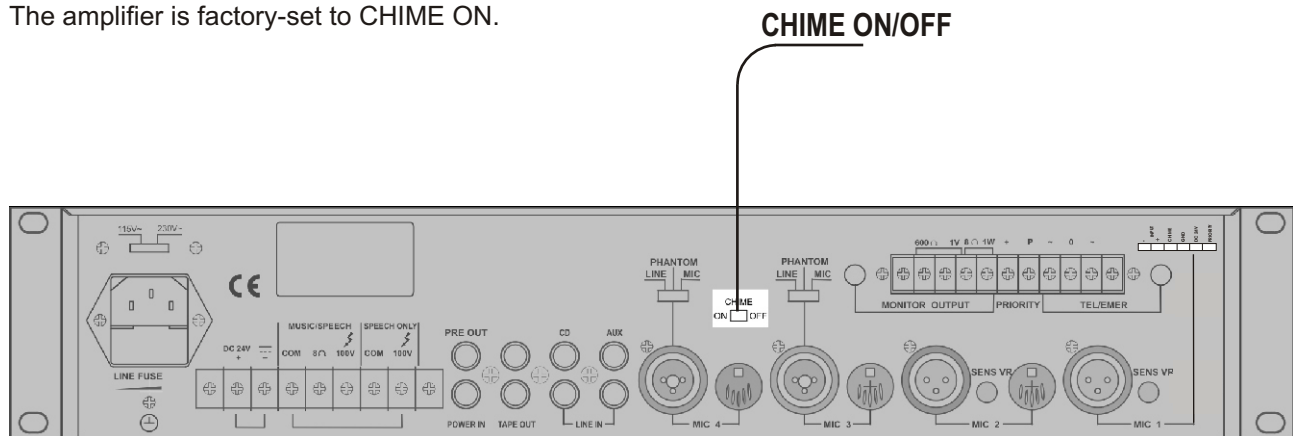
Device Functions - Rear side -



CHIME ON/OFF

To hear the DING/DONG preceding a call ensure that the switch is in position ON and put 12V on the upper terminal strip or on two special wires of the DIN-jack.

The amplifier is factory-set to CHIME ON.

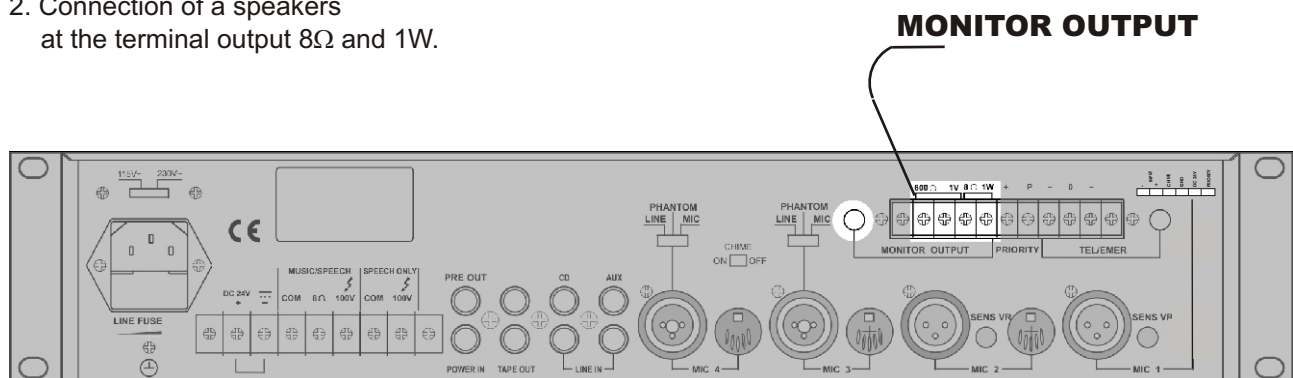


MONITOR OUTPUT

If the loudspeaker zone is not in the same room as the amplifier you can supervise the output with the connectors on the terminal strip marked as MONITOR OUTPUT.

There are several options.

1. Connection of an ear phone at the terminal output 600Ω and 1V.
2. Connection of a speakers at the terminal output 8Ω and 1W.



Device Functions

- Rear side -



EMERGENCY INPUT

The **TEL/EMER** Input is used to input emergency announcements and/or signals.

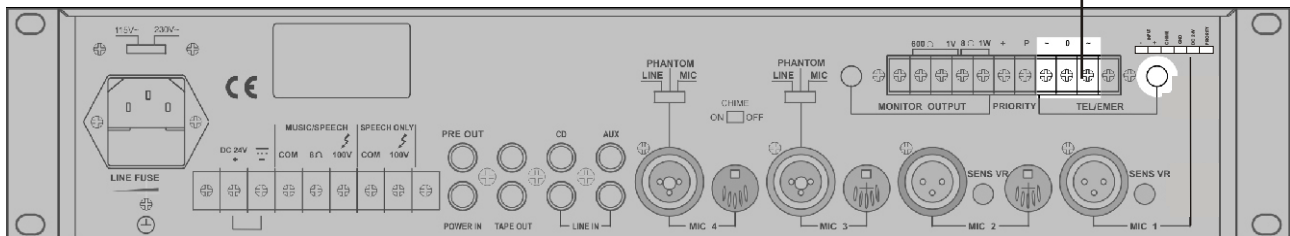
TEL/EMER stands for **TELEPHONE / EMERGENCY**.

The emergency input is not affected by the master volume but has its own volume control on the rear side. It can not be set to zero.

This input has the highest priority and is always transmitted to all zones.

You can an alarm-call by telephone if you are in possession of an EPABX-able telephone system. For detailed wiring instructions please refer to the documentation of your manufacturer.

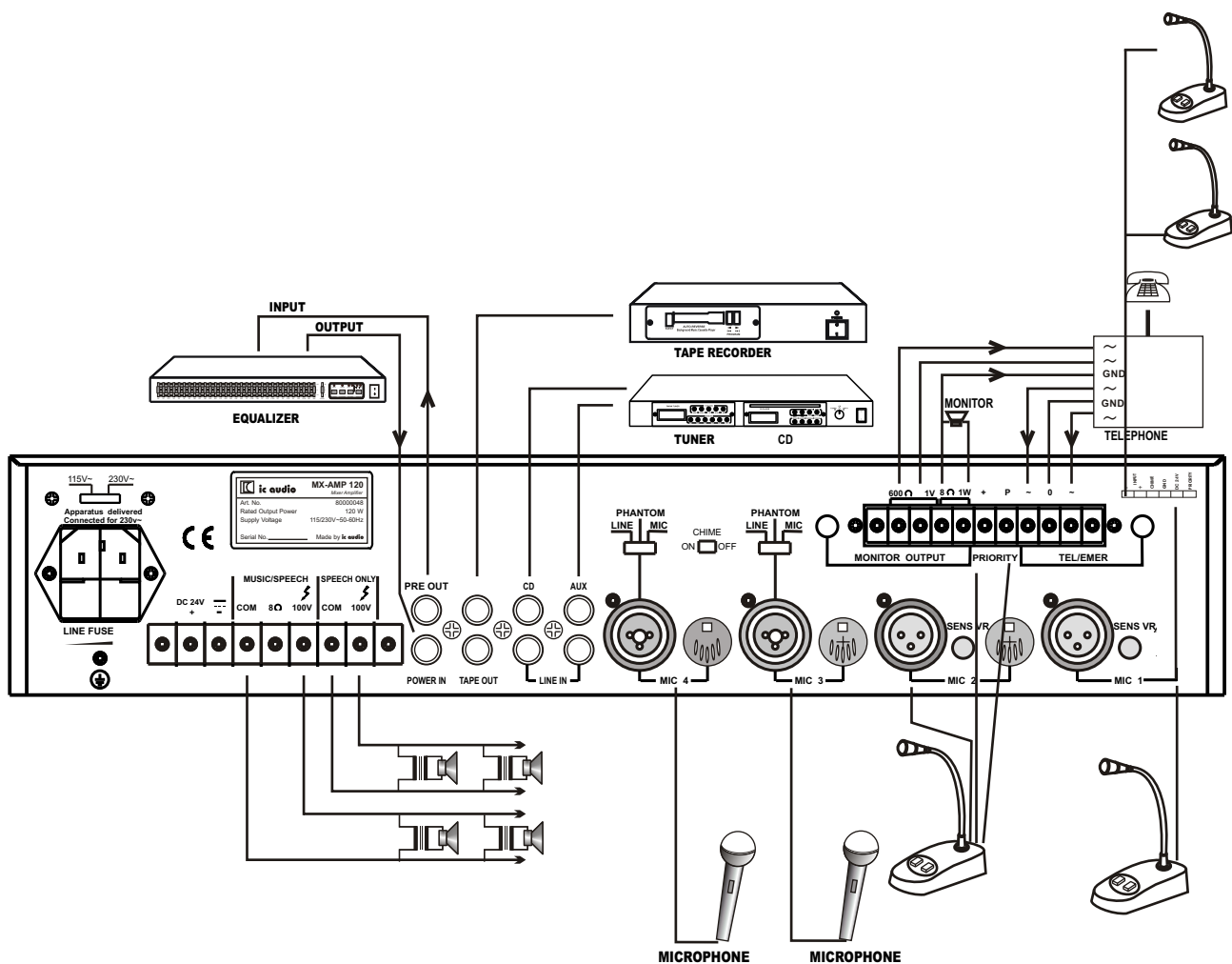
Emergency input
telephone connection possible



Device Functions - Rear side -



OVERVIEW of all Functions



Further Information



- Technical Specifications
- Block Plugging Diagram
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Technical Specifications

Containing all technical specifications

Block Plugging Diagram

Circuit construction

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Content in alphabetical order.

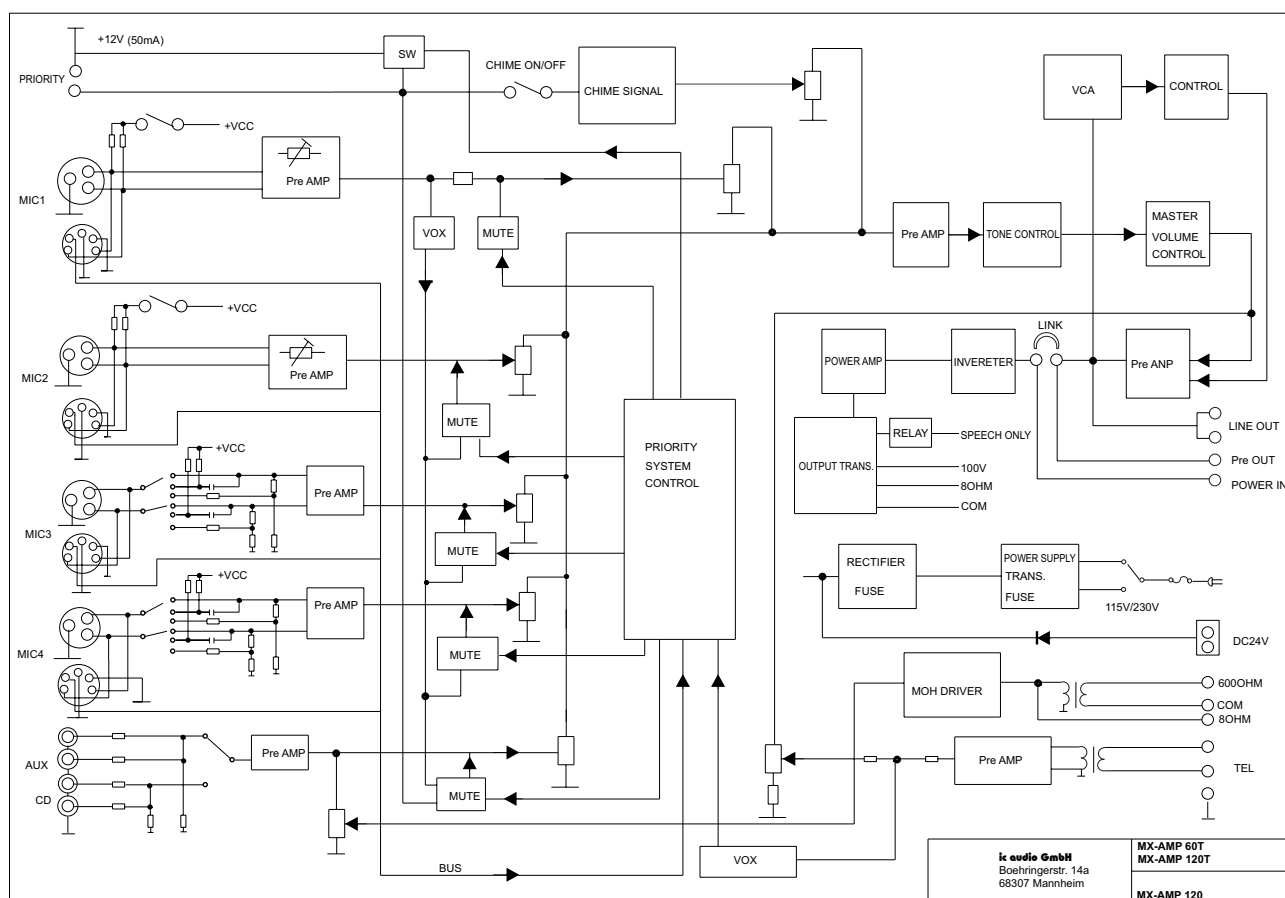
Technical Specifications

Type	TWO ZONE MIXER AMPLIFIER
Model	MX-AMP 60T / MX-AMP 120T / MX-AMP 120
Supply	Mains Voltage AC 115V / 230V , 50 / 60Hz \pm 10% Switchable Battery Voltage DC 24V (Max 10% diviation)
Output power Max:	90W 180W
Rated:	60W 120W
Outputs	SPEAKER OUTPUTS: MUSIC/SPEECH: 8ohm,100V SPEECH: 100V TAPE OUTPUT: 350mV 4.7Kohm PRE OUTPUT: 1V, 600ohm MOH OUTPUT: 8ohm 1 watt / 600ohm,1V balanced.
Inputs	MIC 1/2: Sens. Adj (1mV~775mV),250ohm balanced w. phantom power selectable. MIC 3/4: Mic - 1mV, 250ohm, balanced without phantom power. PHANTOM: - 1mV, 250ohm, balanced with phantom power. LINE: - 100mV, 47Kohm, balanced without phantom power. CD: 500mV,47Kohm, unbalanced AUX: 200mV,47Kohm, unbalanced TEL : 0.1~1V,600ohm, adjustable, balanced POWER IN: 1V,47Kohm, unbalanced
Frequency response	MIC1~MIC4: 60Hz ~ 15KHz \pm 3dB AUX/CD : 50Hz ~ 20KHz \pm 3dB TEL : 100Hz ~ 15KHz \pm 3dB
Total harmonic distortion	Less than1% at 1KHz, rated power
Signal to noise ratio	All VOLUME CONTROLS C.C.W. : 80dB below rated power MIC1 ~ 4 : 60dB below rated power TEL : 70dB below rated power LINE (AUX/CD) : 70dB below rated power
Tone controls	BASS : +/- 10dB at 100Hz TREBLE: +/-10dB at 10KHz
Controls	MIC1~MIC4 volume control LINE (AUX/CD) volume control MASTER volume control TEL input level control MOH output level control TONE controls (Bass,Treble) CHIME on/off switch LINE / PHANTOM / MIC selector switch AC 115V / 230V voltage Selector switch
Indicators	Power indicator (LED),output level indicators (5 LEDS)
AC power consumption	200 watts 400 watts
DC power consumption	4A 8A
Chime	TWO TONE CHIME (Ding-done attention signal preceding a call).
Priority	PRIORITY LEVEL (Using for MIC1~4, the 5 pole DIN connector) TEL / EMER MIC1 MIC2 MIC3 MIC4 AUX/CD 6 5 4 3 2 1 PRIORITY LEVEL (Using for "priority" screw terminal) TEL / EMER MIC1 MIC2 MIC3 MIC4 AUX/CD 6 2 2 2 2 1
Dimensions (H x W x D)	Desktop: 88 x 430 x 300 mm / 19" Rack: 88 x 483 x 300 mm
Weight	MX-AMP 60: Approx 8,5kg / MX-AMP 120: Approx 10.0kg
Colour	Black
	Desktop and 19" rack mountable

Further Information



Block Plugging Diagram



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... to make people listen

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