MPA-4150

ORDERCODE D6121

SHOWELECTRONICS FOR PROFESSIONALS

Congratulations!

You have bought a great, innovative product from DAP Audio.
The DAP Audio MPA- Series bring excitement to any venue. Whether you want simple plug-&-play action or a sophisticated show, this product provides the effect you need.

You can rely on DAP Audio, for more excellent audio products.
We design and manufacture professional audio equipment for the entertainment industry.
New products are being launched regularly. We work hard to keep you, our customer, satisfied.

You can get some of the best quality, best priced products on the market from DAP Audio.
So next time, turn to DAP Audio for more great audio equipment.
Always get the best -- with DAP Audio !

Thank you!

DAP Audio MPA-4150 Product Guide

Warning 2
Safety-instructions 2
Operating Determinations 3

Description 4
Features 4
Overview Front panel 4
Overview Back panel 5

Operation 7

Connection Cables 9

Maintenance 10

Troubleshooting 10

Product Specifications 11

Appendix 1: Block Diagram 12

WARNING

CAUTION!

Keep this system away from rain and moisture!

FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY BEFORE YOUR INITIAL START-UP!

SAFETY INSTRUCTIONS

Every person involved with the installation, operation and maintenance of this system have to:

- be qualified
- follow the instructions of this manual

CAUTION! Be careful with your operations.
With a dangerous voltage you can suffer
a dangerous electric shock when touching the wires!

Before you initial start-up, please make sure that there is no damage caused by transportation. Should there be any, consult your dealer and do not use the system.

To maintain perfect condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual.

Please consider that damages caused by manual modifications to the system are not subject to warranty.

This system contains no user-serviceable parts. Refer servicing to qualified technicians only.

IMPORTANT:

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the system.

- Never let the power-cord come into contact with other cables! Handle the power-cord and all connections with the mains with particular caution!
- Never remove warning or informative labels from the unit.
- Never use anything to cover the ground contact.
- Do not insert objects into air vents.
- Do not connect this system to a dimmerpack.
- Do not switch the system on and off in short intervals, as this would reduce the system's life.
- Do not open the device and do not modify the device.
- Do not open this device. Risk: hazardous radiation exposure.
- Only use system indoor, avoid contact with water or other liquids.
- Avoid flames and do not put close to flammable liquids or gases.
- Always disconnect power from the mains, when system is not used. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.
- Make sure you don't use the wrong kind of cables or defective cables.
- Make sure that the signals into the mixer are balanced, otherwise hum could be created.
- Make sure you use DI boxes to balance unbalanced signals; All incoming signals should be clear.
- Make sure that the available voltage is not higher than stated on the rear panel.
- Make sure that the power-cord is never crimped or damaged. Check the system and the power-cord from time to time.

- Make sure that the amplifier is turned down, before turning the power on or off. So you can avoid supersonic frequencies, which could damage your speakers.
- Don't put your equipment next to TV, radio, etc., because of interference or distortion.
- If you connect other parts of the system, be careful of ground loops.
- The best way to avoid ground loops is connecting the electrical system ground to one central point ("star" system). In this case the mixer can act as a central point.
- Before changing the ground, always turn off your amplifier.
- Please read this manual carefully and keep it for future reference. Remember that the amplifier has a better value on the market, if you save the carton and all packing materials.
- Always operate the unit with the AC ground wire connected to the electrical system ground.
- Connecting amplifier outputs to oscilloscopes or other test equipment, while the amplifier is in bridged mode, may damage both the amplifier and test equipment.
- Do not drive the inputs with a signal level bigger, than required to drive the equipment to full output.
- In system setup, the amplifier's output power must be 50%-100% more than the loaded loudspeakers rated power.
- Please turn off the power switch, when changing the power cord or signal cable, or select the input mode switch.
- In typical use, please set the volume at 0dB position.
- Sometimes, when you want to send one signal to more than one amplifier, you should use a signal distributor.
- If your Dap Audio device fails to work properly, discontinue use immediately. Pack the unit securely (preferably in the original packing material), and return it to your Dap Audio dealer for service.
- Allow time to cool down, before cleaning or servicing.
- For replacement use fuses of same type and rating only.
- Prevent distortion! Make sure that all components connected to the device have sufficient power ratings. Otherwise distortion will be generated because the components are operated at their limits.
- Avoid ground loops! Always be sure to connect the power amps and the mixing console to the same electrical circuit to ensure the same phase!
- If system is dropped or struck, disconnect mains power supply immediately. Have a qualified engineer inspect for safety before operating.
- If the system has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your system. Leave the system switched off until it has reached room temperature.
- This device falls under protection class I. Therefore it is essential to connect the yellow/green conductor to earth.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- WARRANTY: Till one year after date of purchase.

OPERATING DETERMINATIONS

If this system is operated in any other way, than the one described in this manual, the product may suffer damages and the warranty becomes void.
Any other operation may lead to dangers like short-circuit, burns, electric shock, etc.

You endanger your own safety and the safety of others!

Improper installation can cause serious damage to people and property !

Description of the device

Features

The MPA-4150 is a professional high power Public Adress Amplifier:

- 4 independent channels
- 4 sets of bas treble and volume controls
- 4 LED level meters with protection indicator
- 4 balanced inputs for Mic/ line and input sensitivity control
- Telephone paging function, Phoenix type terminal block input type
- Low impedance 4Ω, 8Ω and high impedance 25V/ 70V/ 100V output
- Output power: 150W(RMS) x 4
- Selectable input types: COMBO (TRS & XLR) and terminal type
- Switchable input functions:
  MIC/Line input sensitivity
  Phase
  High-pass filter
  48V phantom power
- Input mode selectable: Four independent inputs
- 19"Rack mount type (3HE size)

Frontpanel

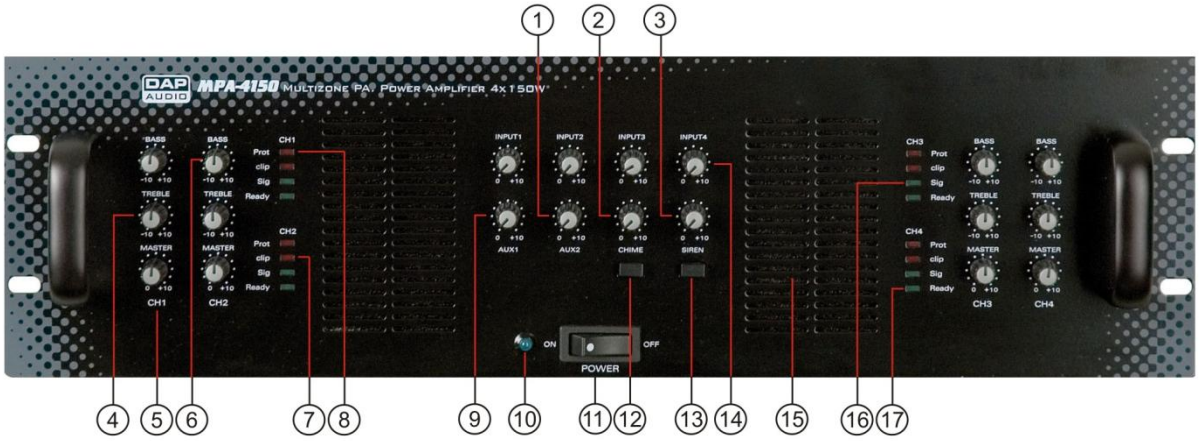

Fig. 1

1. **Aux 2.**
   Use to adjust the aux 2 input level.
2. **Chime.**
   Use to adjust the chime level.
3. **Siren.**
   Use to adjust the siren level.
4. **Treble.**
   Use to adjust the treble frequencies for each channel to your preference.
5. **Master.**
   Use to adjust the volume level for each channel to your preference.
6. **Bass.**
   Use to adjust the Bass frequencies for each channel to your preference.
7. **Clip LED.**
   The LED lights up when the distortion exceeds 0.5%. This means that the output-signal is too strong, so you should reduce the input-signal
8. **Prot LED.**
   Indicates that the amplifier is in protection mode. This is either caused by a short circuit in the output load or a mismatch of impedance. Check that the impedance of your speakers matches the output.
   - In case of using the 25V, 70V or 100V outputs this means that your total speaker-power may never exceed 150W. Using less power is no problem in 25V, 70V or 100V systems.
   - In case you're using the low impedance outputs (4 or 8 Ω) make sure your speaker impedance matches the output impedance. The total speaker-power should be at least 150W.

9. **Aux 1.**
   Use to adjust the aux 1 input level.
10. **Power LED.**
    Indicates that the amplifier is turned on.
11. **AC Power Switch.**
    This is the main Power switch. Press to turn the amplifier on.
12. **Chime button.**
    Activates the Chime circuit. If pressed in, the chime can be started by using the priority contact at the backside (30). At the same time all inputs except input 1 will be muted.
13. **Siren button.**
    Pressing this button will start the siren.
14. **Input.**
    Use to adjust the input volume level for input 1-4.
15. **Air entrance.**
    MPA Series amplifiers are cooled by dual, front-mounted fans, Cool air flows over the heat sinks And exhausts through the rear grills, Make sure these outlets remain clear to allow unrestricted air flow.
16. **Signal LED.**
    The LED lights up when the output is above 200mV.
17. **Ready LED.**
    The LED lights up when the unit is ready for use.

Backpanel

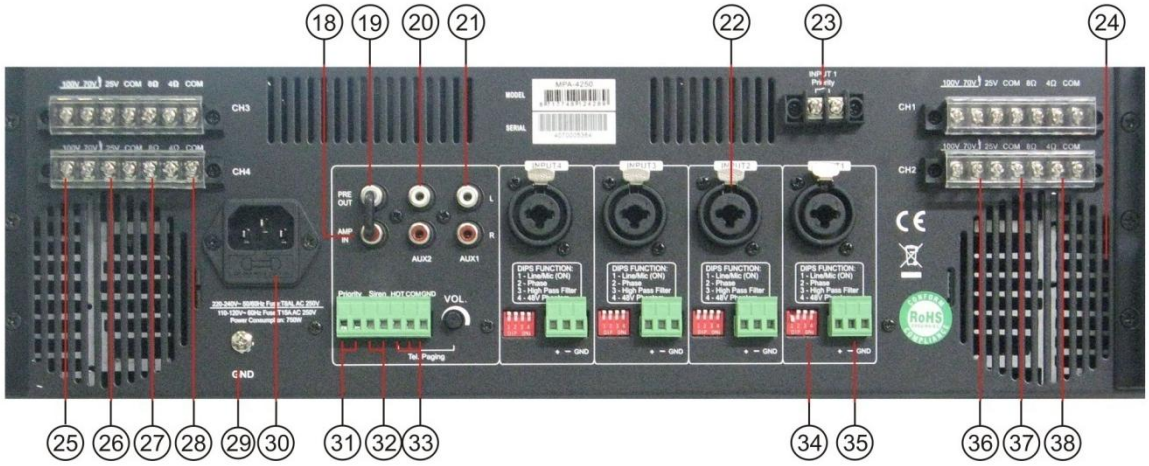

Fig. 2

18. **Power amp in.**
    Mono RCA in. Use this input if You don't want to use the build in mixer.
19. **Preamp out.**
    Mono RCA out. Use this output if you don't want to use the built in power amplifiers.
20. **Aux 2 input.**
    Aux 2 stereo RCA input.
21. **Aux 1 input.**
    Aux 1 stereo RCA input.
22. **Combo input.**
    Combo input for channel 1 – 4. Accepts balanced or unbalanced inputs.
23. **Input 1 priority terminal.**
    Bridge the 2 terminal contact with a wire to disable the input 1 voice priority/ VOX function.
24. **Air cooling window**
    Make sure these inlets remain unobstructed to allow unrestricted air flow.
25. **100V terminal.**
    Connect this terminal to the + terminal of your 100V speaker(s). In case of using several speakers make sure all speakers are wired in parallel. **The total power rating of the 100V-speakers for each channel should never exceed 150W.**

26. 25V terminal.

Connect this terminal to the + terminal of your 25V speaker(s). In case of using several speakers make sure all speakers are wired in parallel. **The total power rating of the 25V-speakers for each channel should never exceed 150W.**

27. 8 Ω terminal.

Connect this terminal to the + terminal of your 8 Ω speaker(s). In case of using several speakers **make sure that the total speaker load is 8 Ω. The total power rating for each channel of the low impedance speakers should be at least 150W.**

28. Common terminal low impedance.

Connect this terminal with the – terminal of your low impedance speaker(s).

29. GND Screw.

This screw offers a separate ground connection. Can be useful in case of grounding problems.

30. AC Inlet with integrated fuse holder.

This connector is meant for the connection of the supplied main cord. Connect one end of the power cord to the connector, the other end to the mains, then turn on the power switch (11) to operate the unit.

Note: Please make sure that the supply voltage matches the operation voltage before connecting the unit to mains.

Replace the fuse only with a fuse of same specification (230V:T6.3A/ 115V: 12A).

31. Priority remote terminal.

Use this terminal for connecting a remote switch or relay contact. Closing this contact will mute all inputs except input 1. If the chime button (12) is pressed, a chime signal will be put out.

32. Siren remote terminal.

Use this terminal for connecting a remote switch or relay contact. Closing the switch will activate the siren, independent of the siren front switch (13).

33. Telephone terminal.

Use this terminal to connect a telephone set for broadcasting emergency messages.

34. Impedance/level switch.

Each input can be customized using 4 dipswitches. You can select 4 options:

1. Line/ Mic: Use this switch to set the input impedance/ sensitivity to either Line or Microphone level. Off position is Line, On position is Mic.
2. Phase: If this switch is in on position, the phase will be inversed.
3. High pass filter: In on position a highpass filter will be activated. The cutoff frequency is 200Hz.
4. 48V phantom power: In on position the input will provide 48V phantom power for a condenser microphone.

35. Input terminal.

Input for channel 1 – 4. Accepts balanced or unbalanced inputs.

36. 70V terminal.

Connect this terminal to the + terminal of your 70V speaker(s). In case of using several speakers make sure all speakers are wired in parallel. **The total power rating of the 70V-speakers for each channel should never exceed 150W.**

37. Common terminal high impedance.

Connect this terminal with the – terminal of your high impedance speaker(s).

38. 4 Ω terminal.

Connect this terminal to the + terminal of your 4 Ω speaker(s). In case of using several speakers **make sure that the total speaker load is 4 Ω. The total power rating for each channel of the low impedance speakers should be at least 150W.**

Operation

Installation

Remove all packing materials from the MPA-4150. Check that all foam and plastic padding is removed. Secure the equipment into a 19" rack. Connect all cables.

Connecting Power / Circuit Size Requirements.

The actual current draw, the amplifier demands from the AC mains, depends on many factors (its load, output level or the crest factor of its program material).

The power requirement is rated under typical music conditions, with both channels driven so those peaks are just at the clipping point.

Make sure the mains voltage is correct and is the same as printed on the rear of the amplifier. Damage caused by connecting the amplifier to improper AC voltage is not covered by any warranty. Unless otherwise specified when ordered. DAP audio amplifiers shipped to customers are configured as follows:

North America 120VAC/60Hz
Europe 230VAC/50Hz
Asia 220VAC /50Hz/60Hz
Australia 240VAC/50Hz
South America 120VAC/60Hz or 220VAC/50Hz
Japan 100VAC/50Hz

NOTE: Always turn off and disconnect the amplifier from mains voltage before making audio connections. Also, as an extra precaution, have the attenuators turned down during power-up.

Dip switch settings

The MPA4150 has 4 balanced combo inputs. You can use these for connecting either jack or XLR cables. Each input can be customized using 4 dipswitches. You can select 4 options:

5. Line/ Mic: Use this switch to set the input impedance/ sensitivity to either Line or Microphone level. Off position is Line, On position is Mic.
6. Phase: If this switch is in on position, the phase will be inversed.
7. High pass filter: In on position a highpass filter will be activated. The cutoff frequency is 200Hz.
8. 48V phantom power: In on position the input will provide 48V phantom power for a condenser microphone.

Connecting Inputs.

Use the XLR input connectors on the rear to supply audio signals to your DAP Audio MPA- Series amplifier. The connectors accept balanced and unbalanced audio connections. (The MPA- Series amplifiers are configured standard with "Pin 2 hot" on XLR inputs. For more Information, see the section on Connection cables page 9.

Connecting Outputs.

Speakers are connected using terminal connectors. See the examples below and following page.

Low impedance outputs

You can use as many speakers as you want as long as the total impedance matches the amplifiers output.

Example 1: using the 4Ω output with two 8Ω speakers.

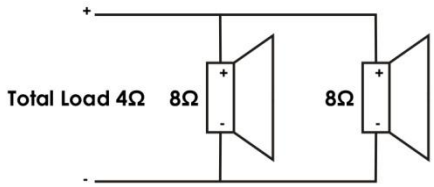

Fig. 3

Example 2: using the 4Ω output with four 4Ω speakers

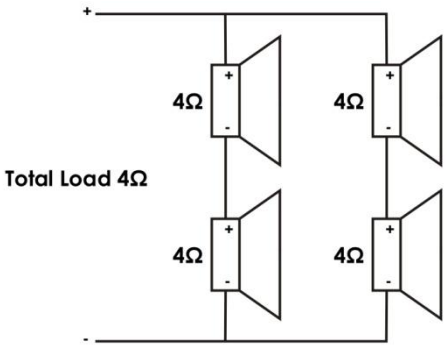

Fig. 4

Example 3: using the 8Ω output with two 4Ω speakers.

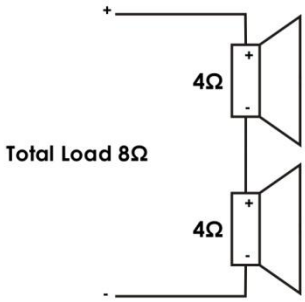

Fig. 5

In a low impedance system, the total speakerload should always match the amplifier impedance This to avoid overloading the amplifier. The total speaker power should be at least the power of the amplifier to avoid damage to the speakers.

High impedance outputs

If using either the 25V, the 70V outputs or the 100V outputs, note that all speakers should be wired in parallel.

The total power of all speakers summed together should never exceed the total power of the amplifier in a 25V, a 70V or a 100V system!

Connection Cables

Take care of the connector cables, always holding them by the connectors and avoiding knots and twists when coiling them: This gives the advantage of increasing their life and reliability, which is always to your advantage.
Periodically check that your cables are in good condition, that they are correctly wired and that all their contacts are in good condition: a great number of problems (faulty contacts, ground hum, discharges, etc.) are caused entirely by using unsuitable or faulty cables.

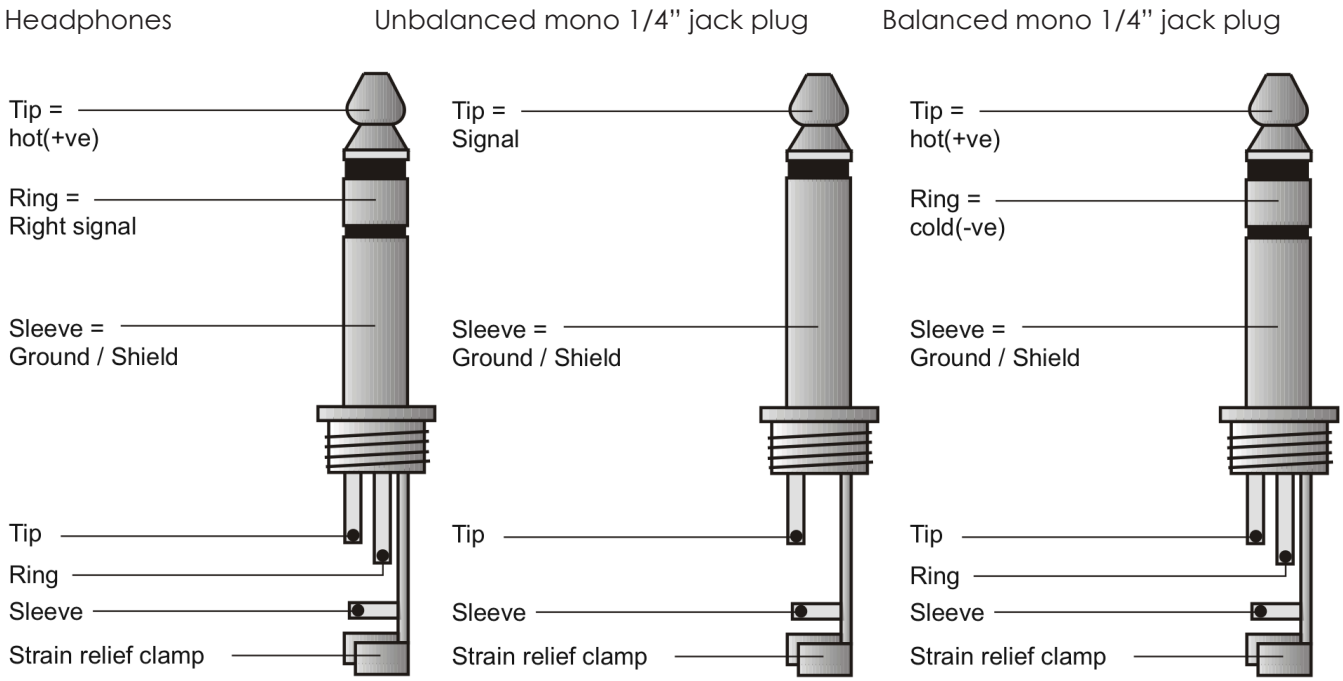

Fig.6

Compensation of interference with balanced connections

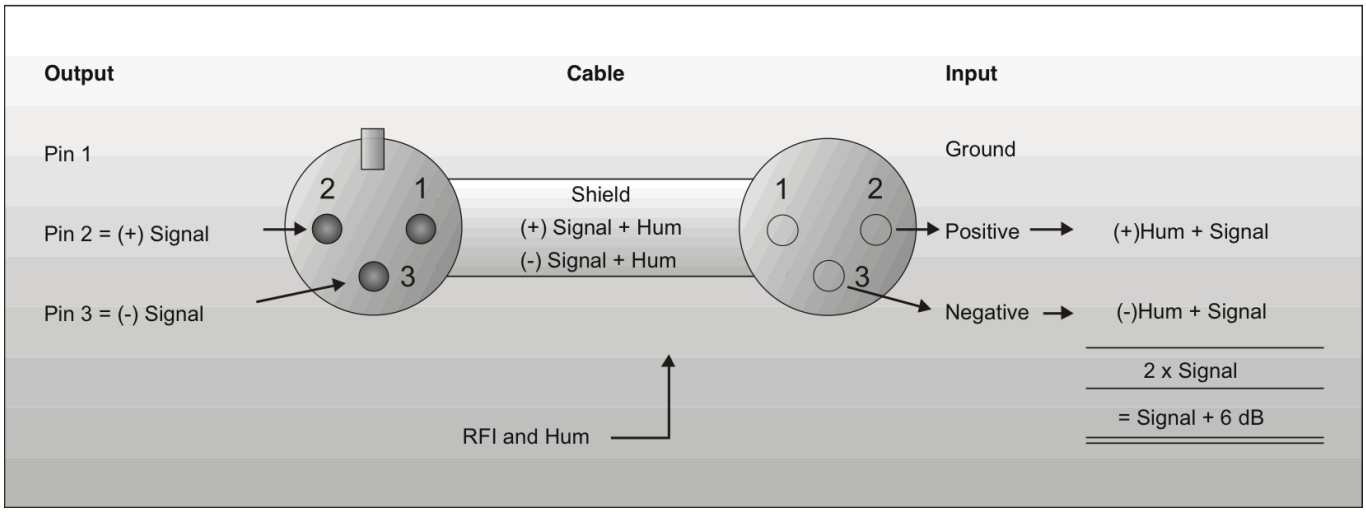

Fig.7

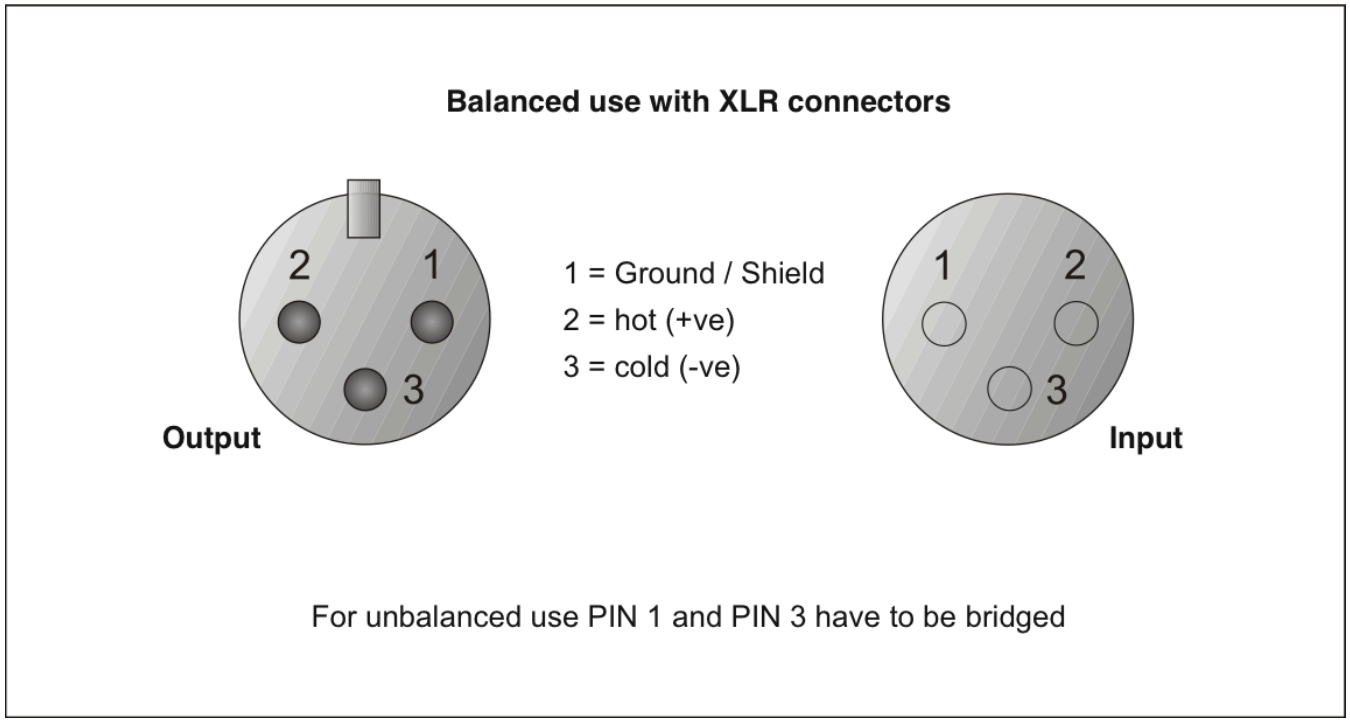

Fig. 8

Maintenance

The DAP Audio MPA-series requires almost no maintenance. However, you should keep the unit clean. Disconnect the mains power supply, and then wipe the cover with a damp cloth. Do not immerse in liquid. Do not use alcohol or solvents.
Keep connections clean. Disconnect electric power, and then wipe the audio connections with a damp cloth. Make sure connections are thoroughly dry before linking equipment or supplying electric power.

Replacing a Fuse

Power surges, short-circuit or inappropriate electrical power supply may cause a fuse to burn out. If the fuse burns out, the product will not function whatsoever. If this happens, follow the directions below to do so.

1. Unplug the unit from electric power source.
2. Insert a flat-head screwdriver into a slot in the fuse cover. Gently pry up the fuse cover. The fuse will come out.
3. Remove the broken fuse. If brown or unclear, it is burned out.
4. Insert the replacement fuse into the holder where the old fuse was. Reinsert the fuse cover. Be sure to use a fuse of the same type and specification. See the product specification label for details.

Troubleshooting

DAP Audio MPA-series Amplifiers.
This troubleshooting guide is meant to help solve simple problems. If a problem occurs, carry out the steps below in sequence until a solution is found. Once the unit operates properly, do not carry out following steps.

1. If the device does not operate properly, unplug the device.
2. Check the fuse, power from the wall, all cables, etc.
3. If all of the above appears to be O.K., plug the unit in again.
4. If you are unable to determine the cause of the problem, do not open the amplifier, as this may damage the unit and the warranty will become void.
5. Return the amplifier to your Dap Audio dealer.

Product Specifications

Model:	DAP Audio MPA-4150
Power supply:	230 VAC
Fuse:	230V: 6.3AT 115V: 12A
Inputs 1 – 4:	Sensitivity: Mic: -55dB balanced Line: -16dB balanced High filter: 150Hz (-3dB) Phantom: 48V Telephone paging function sensitivity: 120mV
Frequency response:	Mic: 60Hz – 12kHz (-3dB) Line: 30Hz – 18kHz (-3dB) Tel: 120Hz – 5kHz (-3dB)
Tone control:	Treble: ±10dB at 10kHz Bass: ±10dB 100Hz
Total harmonic distortion:	≤ 0.5%(1KHz-nominal power capacity)
Signal / noise ratio:	Mic: > 60dB Line: > 70dB Tel: > 60dB
Priority for MIC 1:	Sensitivity: -30dB ±5%
Outputs for speakers:	4Ω, 8Ω
Outputs for speakers:	25 - 70V-100V
Output power:	150W x 4 at 4Ω, 8Ω, 25V, 70V, 100V
Input impedance:	20k Balanced
Indicator:	PROT_ LED, READY_LED, CLIP_LED, SIGNAL_ LED x 4 LED VU-meter x4
Dimensions :	483 x 356 x 133 mm (LxWxH)
Weight :	22,74 kg

Design and product specifications are subject to change without prior notice.

CE

Email: service@highlite.nl

Appendix 1: Block diagram MPA-4150

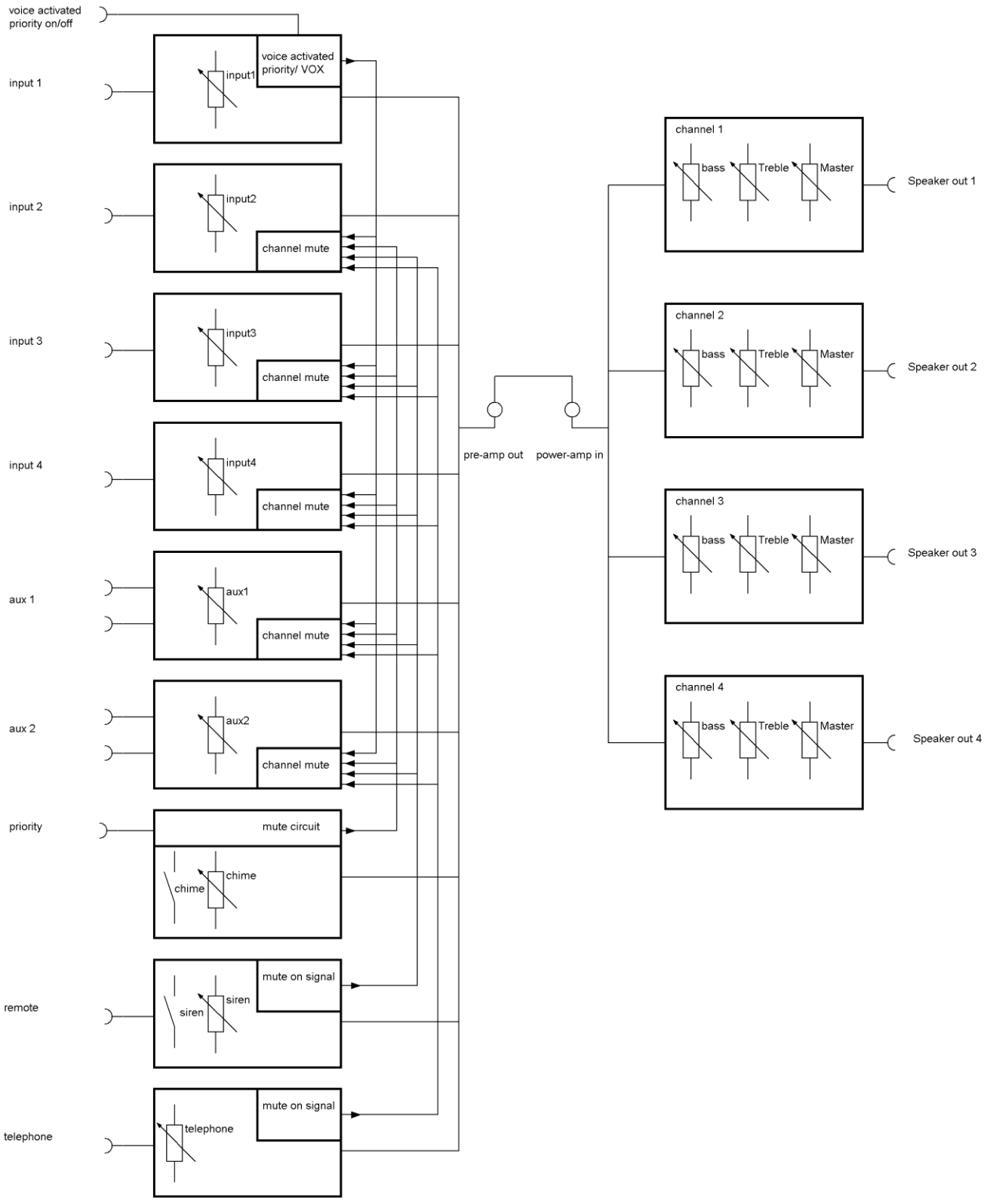

Fig. 9