



PA90CDT v3

ORDERCODE D6110



SHOWELECTRONICS FOR PROFESSIONALS

Congratulations!

You have bought a great, innovative product from DAP Audio.

The DAP Audio PA90CDT brings 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!



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WARNING

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

Unpacking Instructions

Immediately upon receiving this product, carefully unpack the carton and check the contents to ensure that all parts are present, and have been received in good condition. Notify the dealer immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Your shipment includes:

- DAP PA90CDT
- IEC cable (1,75m)
- Room antenna
- User manual

WARNING



CAUTION!

Keep this system away from rain and moisture!



SAFETY INSTRUCTIONS

Every person involved with the installation, operation and maintenance of this system has 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.
- Never leave any cables lying around.
- 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 drive the inputs with a signal level bigger, than required to drive the equipment to full output.
- Do not plug Mics into the console (or stagebox) while Phantom Power is on. Also mute the monitor / Pa system when turning Phantom Power on or off. Allow the system to adjust for a couple of seconds, before setting the input gains.
- 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.
- Always operate the unit with the AC ground wire connected to the electrical system ground.
- 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.
- Please turn off the power switch, when changing the power cord or signal cable, or select the input mode switch.
- Extreme frequency boosts in connection with a high input signal level may lead to overdriving your equipment. Should this occur, it is necessary to reduce the input signal level by using the INPUT control.
- To emphasize a frequency range, you don't necessarily have to move its respective control upward; try lowering surrounding frequency ranges instead. This way, you avoid causing the next piece of equipment in your sound path to overdrive. You also preserve valuable dynamic reserve ("headroom")
- 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.
- 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.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- For replacement use fuses of same type and rating only.
- WARRANTY: Till one year after date of purchase.

OPERATING DETERMINATIONS

This system is not designed for permanent operation. Consistent operation breaks will ensure that the system will serve you for a long time without defects.

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 !

Connection with the mains

Connect the device to the mains with the power-plug.

Always pay attention, that the right color cable is connected to the right place.

| International | EU (including UK) From April 2004 | North America | Pin |
|---|--------------------------------------|---------------|------------------|
| L | Brown | Black | Phase |
| N | Blue | White | Neutral |
|  | Green/Yellow | Green | Protective Earth |

Make sure that the device is always connected properly to earth!

Return Procedure

Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Authorization Number (RMA number). Products returned without an RMA number will be refused. Highlite will not accept the returned goods or any responsibility. Call Highlite 0031-455667723 or mail aftersales@highlite.nl and request an RMA prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause for the return. Be sure to properly pack fixture, any shipping damage resulting from inadequate packaging is the customer's responsibility. Highlite reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note: If you are given an RMA number, please include the following information on a piece of paper inside the box:

- 1) Your name
- 2) Your address
- 3) Your phone number
- 4) A brief description of the symptoms

Claims

The client has the obligation to check the delivered goods immediately upon delivery for any shortcomings and/or visible defects, or perform this check after our announcement that the goods are at their disposal. Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise.

It is the customer's responsibility to notify and submit claims with the shipper in the event that a fixture is damaged due to shipping. Transportation damage has to be reported to us within one day after receipt of the delivery.

Any return shipment has to be made post-paid at all times. Return shipments must be accompanied with a letter defining the reason for return shipment. Non-prepaid return shipments will be refused, unless otherwise agreed in writing.

Complaints against us must be made known in writing or by fax within 10 working days after receipt of the invoice. After this period complaints will not be handled anymore.

Complaints will only then be considered if the client has so far complied with all parts of the agreement, regardless of the agreement of which the obligation is resulting.

Description of the device

Features

The PA90CDT is a professional high power Public Address Amplifier:

- 3 independent channels
- bass/ treble tone control
- LED output level meter with overload indicator
- 2 unbalanced inputs for Mic with level control
- 1 unbalanced input for Mic/ aux with level control
- Low impedance 4Ω and high impedance 25V/ 70V/ 100V output
- Output power: 90W(RMS)

Frontpanel

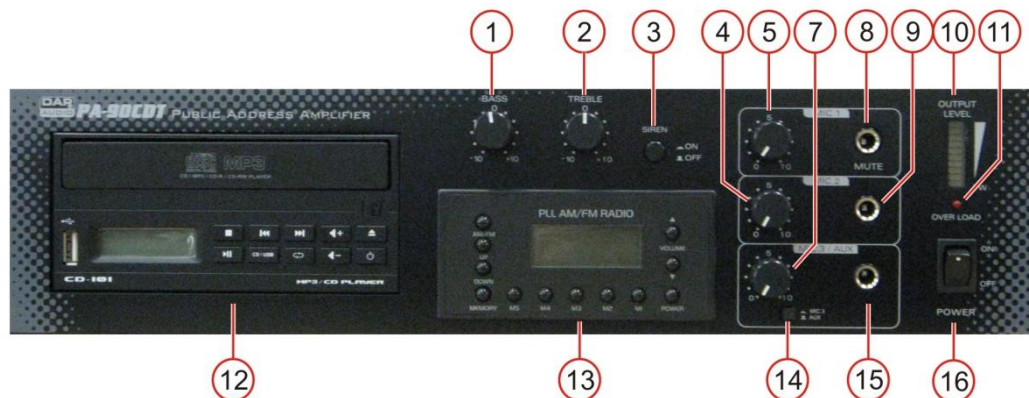


Fig. 1

- 1. Bass**
Use to adjust the Bass frequencies for each channel to your preference.
- 2. Treble**
Use to adjust the treble frequencies for each channel to your preference.
- 3. Siren button**
Pressing this button will start the siren.
- 4. Mic 2 level**
Use to adjust the input volume level for input 2.
- 5. Mic 1 level**
Use to adjust the input volume level for input 1.
- 7. Mic 3/aux level**
Use to adjust the input volume level for input 3.
- 8. Mic 1 input**
Unbalanced 6,3mm jack input.
- 9. Mic 2 input**
Unbalanced 6,3mm jack input.
- 10. Output level meter**
- 11. Overload LED**
If this LED starts blinking, lower the volume to avoid distortion.
- 12. USB/ CD-player**
See page 8.
- 13. Tuner**
See page 7.
- 14. Mic 3/aux switch**
Use this switch to configure the Mic 3/aux input for either microphone or line level.
- 15. Mic 3/Aux input**
Unbalanced 6,3mm jack input.
- 16. Power Switch**
Press to turn the amplifier on.

Backpanel



Fig. 2

17. AC fuse T1,6A

Replace the fuse only with a fuse with the same specifications.

18. DC fuse T10A

Replace the fuse only with a fuse with the same specifications.

19. 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 90W.**

20. DC power

Press this switch to operate from an external 24Vdc supply (ie. Battery) connected to the 24Vdc terminal (25).

21. 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 should never exceed 90W.**

22. Fan

Do not obstruct the air inlet.

23. AM antenna input

24. Power cord

Connect to the mains, then turn on the power switch (16) to operate the unit.

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

25. DC 24V terminal

DC 24V input (battery)

26. Common speaker terminal

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

27. 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 should never exceed 90W.**

28. 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 channel should never exceed 90W.**

29. GND Screw

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

30. FM antenna input

Tuner

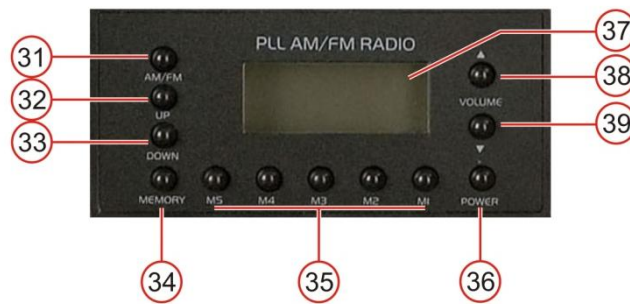


Fig. 3

31. AM/FM radio selection button (AM/FM)

Use this button to select the desired band. You can change the band between AM and FM, when you press this button.

32. Tuning Up button

Use this button to select the desired station. If the UP button is pressed for longer than 1.5 seconds, the AM frequency automatically increases with 9Khz intervals, while the FM frequency automatically increases with 0.1Mhz intervals, till the radio is tuned in. To Stop the selection manually, press the UP button again during automatically tuning.

33. Tuning Down button

Use this button to select the desired station. If the DOWN button is pressed for longer than 1.5 seconds, the AM frequency automatically decreases with 9Khz intervals, while the FM frequency automatically decreases with 0.1Mhz intervals, till the radio is tuned in. To Stop the selection manually, press the DOWN button again during automatically tuning.

34. MEMORY button

If the MEMORY button is pressed, then press any of the selection buttons (M1-M5), the frequency shown on the display is stored together with the memory number. Stored data is kept for about one week, even when the power is not supplied.

35. Selection button (M1-M5)

Up to 5 AM and 5 FM stations can be stored. Press this button to show the stored station frequency and memory number on the display.

36. Power On/Off

Turn the Radio ON/OFF

37. Display

This display indicates the receiving frequency and memory number. When the display is dimmed, the radio is switched off.

38. Volume Up

Press to increase the output level of the tuner.

39. Volume Down

Press to decrease the output level of the tuner.

CD player

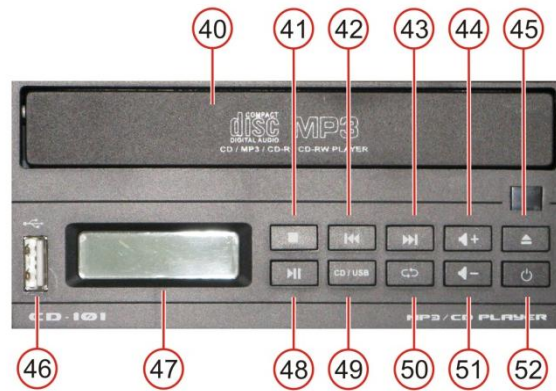


Fig. 4

40. CD holder

41. ■ STOP

Press this button to stop playback.

42. ◀◀ B.SKIP/REW

Use this button for skipping or searching backwards.

43. ▶▶ F.SKIP/FF

Use this button for skipping or searching forward.

44. Volume +

Press this button to increase the output level of the CD/ USB- player

45. OPEN/CLOSE

press this button to open/close the disc holder

46. USB connector

47. Display

This display shows track number, scan point etc. When the display is dimmed, the CD/ USB player is switched off.

48. ▶/|| PLAY/PAUSE

Pressing this button will start playback. Pressing the button again will pause playback.

49. CD/ USB switch

Pressing this button lets you select between CD or USB player mode.

50. ↺ Repeat/Random Play button

Pressing this button lets you switch between Normal play, Repeat all and Random play.

51. Volume -

Press this button to decrease the output level of the CD-player

52. ⏻ CD power ON/ OFF switch

Use to turn the CD/USB player on or off.

Operation

PA90CDT Installation

Remove all packing materials. Check that all foam and plastic padding has been removed. Connect all cables.

Always disconnect from electric mains power supply before cleaning or servicing.

Damages caused by non-observance are not subject to warranty.

Set Up and Operation

Before plugging the unit in, always make sure that the power supply matches the product specification voltage. Do not attempt to operate a 115V specification product on 230V power, or vice versa.

DC power or battery supply's connection

- The unit will also operate with an external 24V battery or another source with negative (-) as ground. Power connection is made at the DC terminal strip on the rear panel.
- If the AC power supply fails, transfer to DC power is instantaneous, automatic and silent.
- The battery power supply is operated by the primary switch.
- The amplifier is not capable of recharging the connected battery. Thus, it is recommended to have a suitable device at hand. When the amplifier is on the DC power source, the nominal power handling capacity operated drops by approximately 20%.

Damage caused by connecting the amplifier to improper AC voltage or DC voltage is not covered by any warranty.

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.

Connecting Inputs.

Use the jack input connectors on the front to supply audio signals to your DAP Audio PA90CDT amplifier. The connectors accept unbalanced audio connections. Input 1 and 2 accept only unbalanced microphone level signals. Input 3 can be switched between either line level or microphone level using the mic 3/aux switch **(16)** on the front panel.

Operating the Tuner

1. Selecting a station

Use the BAND button to select either AM or FM band. Press the UP or DOWN button to tune stepwise. Pressing the UP or DOWN button for more than 1 second will let you speed up the searching.

2. Selecting a preset.

Use the BAND button to select either AM or FM band.
Press M1 to M5 to recall preset M1-M5.

3. Storing a station in Memory

Press the MEMO button. In the display the symbols preset number changes into a line and starts blinking. Now press button M1- M5 to store the preset in the desired memory location.

Operating the CD/USB Player

1. Opening and closing of the disc holder

- Turn the unit's power on. Press the OPEN/CLOSE-button to open the disc holder.
- The disc holder cannot be opened during playback, to prevent playback from being interrupted if the OPEN/CLOSE button is pressed accidentally. Stop the playback first, then press the OPEN/CLOSE button.

2. Loading CD's

- Hold the disc by the edges and place it in the disc holder, then press the OPEN/CLOSE button to close the holder.



CAUTION:

- Do not place any foreign objects in the disc holder and do not place more than one disc in the disc holder at a time.
- Do not push the disc holder in manually when the power is off, as this may result in malfunction and damages the player.

3. Selecting Tracks

- Press the SKIP-button to move to next higher or lower track. The selected track will be displayed in the display. The figure below shows that track 2 is selected.



- Hold the SKIP button to change tracks continuously at a higher speed.
- When a new track is selected during playback, playback begins as soon as the skip search operation is completed.
- If the Skip-button  is pressed while at the last track, the first track is selected. In the same way, If the Skip- button  is pressed while at the first track, the last track is selected.

4. Starting Playback

- Press the PLAY/PAUSE button to start playback when you've just loaded a new CD or selected a track from the (optional)USB stick. or press the PLAY/PAUSE during the pause condition to restart playback.



5. Stop Playback

There are two ways to stop playback:

1. Press the PLAY/PAUSE button during playback to pause at that point.
2. Press the STOP button during playback.

6. Pausing

- Press the PLAY/PAUSE button to switch between play and pause. The display in the figure below shows the CD-player in PAUSE mode.



7. Repeat/ Random play

1. Press the **Repeat/ Random** button once to repeat the current track.



2. Press the **Repeat/ Random** button again to repeat the whole disc.



3. Press the **Repeat/ Random** button again to start random play.



4. Press the **Repeat/ Random** button a fourth time, to exit the Repeat/ Random Mode.

8. Scanning (Fast forward/Fast backward)

- Scanning is a function for moving quickly forward or backward when either the **⏮** or the **⏭** is pressed and hold down.
- Press and hold down the **⏭** button to begin scanning. The disc moves rapidly forward and the sound is not audible. The current scan point is indicated on the LCD.
- Press and hold down the **⏮** button to begin scanning. The disc moves rapidly backward and the sound is not audible. The current scan point is indicated on the LCD.

9. Switching between CD/ USB playback

1. Insert a USB stick.
2. Press the CD/USB button.
Now the display will briefly show USB and then proceed in playback mode.



During playback the display will switch continuously between the current track and the current folder as shown below.



If you try to select USB mode without a USB stick in the USB port, the display will look as the figure below.



Before switching off the power

When you have finished using the CD player, before switching off the power, be sure that the disc holder has been closed with the OPEN/CLOSE button.

CAUTION: Do not forcibly close the disc holder when the power is off.

CD's

1. Precautions on handling compact discs

- Do not allow fingerprints, oil or dust to get on the surface of the disc. If the disc is dirty, wipe it off with a soft dry cloth.
- Do not use benzene, thinner, water, record spray, electrostatic-proof chemicals, or silicone-treated cloths to clean discs.
- Always handle discs carefully to prevent damaging the surface; in particular when removing a disc from its case or returning it.
- Do not bend the disc.
- Do not put the CD near heating sources.
- Do not enlarge the hole in the center of the disc.
- Do not write on the label (printed side) with a hard-tipped implement such as a pencil or ball point pen.
- Condensation will form if a disc is brought into a warm area from a colder one, such as outdoors in winter. Do not attempt to dry the disc with a hair dryer, etc.

2. Precaution on storage

- After playing a disc, always unload it from the player.
- Always store the disc in the jewel case to protect from dirt or damage.
- Do not place discs in the following areas:
 1. Areas exposed to face sunlight for a considerable time.
 2. Areas subject to accumulation of dust or high humidity.
 3. Areas are affected by heat from indoor heaters, etc.

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 4 Ω output with two 8 Ω speakers.

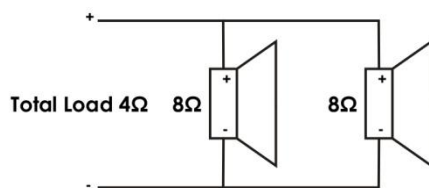


Fig. 5

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

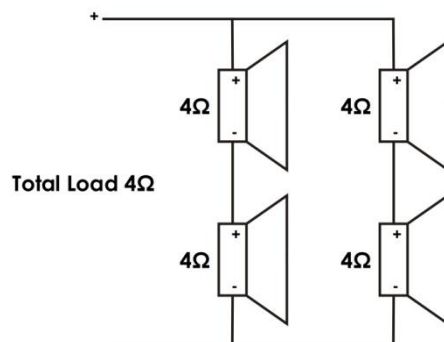


Fig. 6

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.

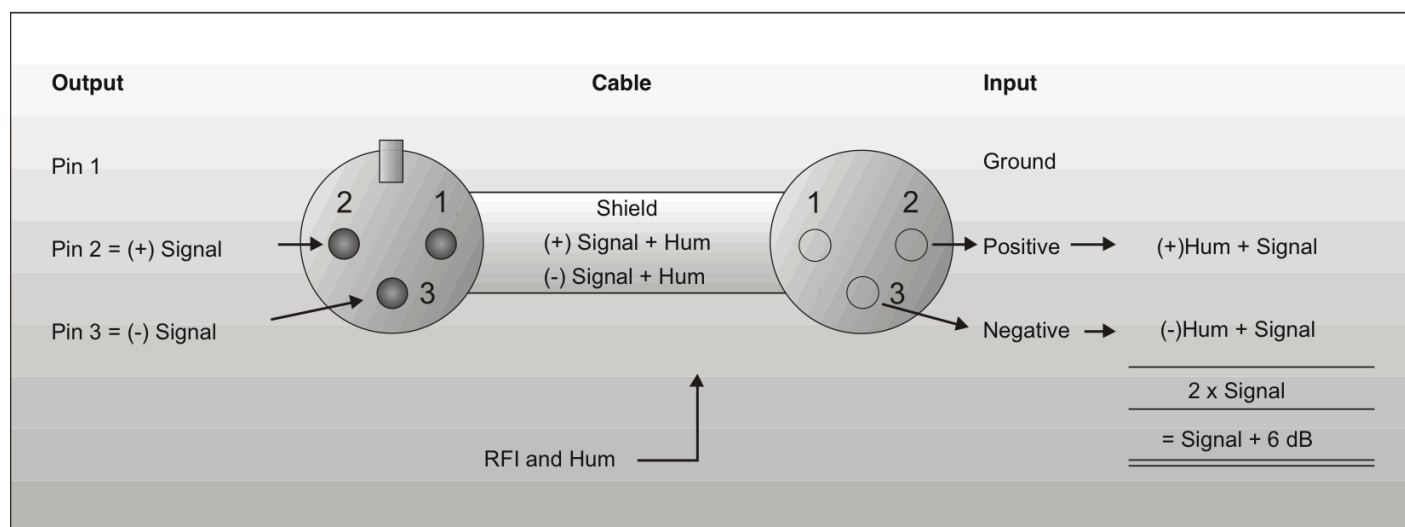
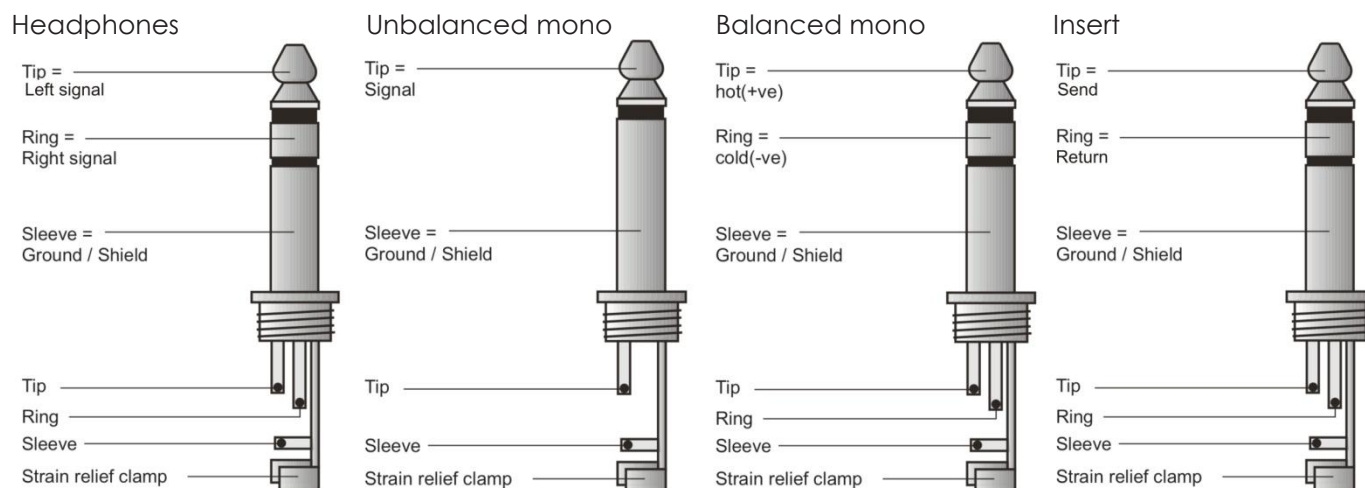
High impedance outputs

When using the 25V, the 70V 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, 70V or a 100V system!

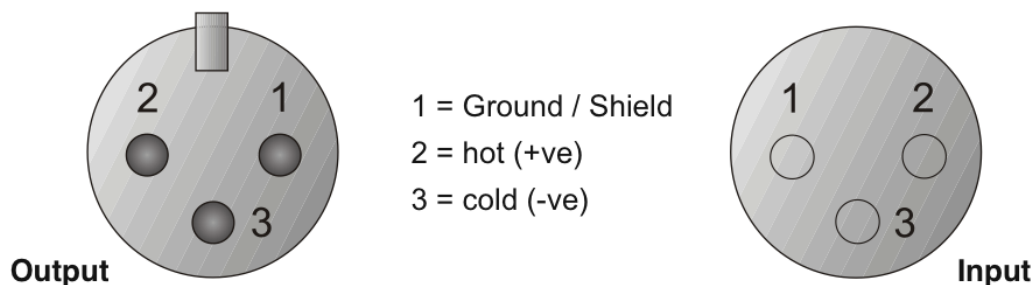
Connection Cables

Take care of your 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. Periodically check your cables. A great number of problems (faulty contacts, ground hum, discharges, etc.) are caused entirely by using unsuitable or faulty cables.



Compensation of interference with balanced connections

Balanced use with XLR connectors



For unbalanced use PIN 1 and PIN 3 have to be bridged

Maintenance

The DAP Audio PA90CDT 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 screwdriver into the slot in the fuse cover. Turn the screwdriver to the left, at the same time Gently push a bit (Turn and Push). 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 PA90CDT.

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 PA90CDT |
| Power supply: | 230 VAC, 24VDC |
| Fuse: | 230V: 1.6AT 24V: 10AT |
| Inputs sensitivity | Mic: -52dBV UnBalanced Aux: -20dBV Unbalanced |
| Frequency response: | 50Hz - 15kHz |
| Tone control: | Treble: ± 10 dB at 10kHz Bass: ± 10 dB 100Hz |
| THD: | $\leq 0.5\%$ (1KHz-nominal power capacity) |
| Signal / noise ratio: | Mic: > 65 dB Aux: > 75 dB |
| Outputs for speakers: | 4 Ω , 8 Ω |
| Outputs for speakers: | 25V, 70V, 100V |
| Output power: | 90W at 4 Ω , 25V, 70V, 100V |
| Indicators: | Power level meter Overload LED |
| Dimensions : | 400 x 305 x 96 mm (LxWxH) |
| Weight : | 9,5 kg |



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



Website: www.Highlite.nl

Email: service@highlite.nl





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