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# MPS-3 Music Playback System

USER MANUAL

**PLAYBACK**  
DESIGNS



## IMPORTANT SAFETY INSTRUCTIONS

- Read and follow these instructions and keep this manual in a safe place.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings.
- Do not install near any heat sources such as radiators, heaters, or other apparatus (including pre-amplifiers and amplifiers) that produce heat.
- Do not install this apparatus in a confined space such as book cases or closed cabinets.
- Unplug this apparatus from the mains during lightning storms or when unused for long periods of time.

## CAUTION

This product is a Class 1 laser product.



There is no hazardous invisible laser radiation during normal operation, because invisible laser radiation emitted inside this product is completely confined in the protective housings.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. The use of optical instruments with this product will increase eye hazard.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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

## **INFORMATION TO THE USER**

Alteration or modification carried out without appropriate approval may invalidate the user's right to operate the equipment.

## **WARRANTY**

Playback Designs warrants this product against defects in material and workmanship under normal use and service for a period of time specified by the product's serial number from the date of first delivery to the owner. The warranty time period is for 30 days. If within the first 30 days of ownership you register your Playback Designs product, by sending us a copy of your sales receipt, your name, address, city, state, zip code, phone number, email address and your dealer's store name, we will extend the warranty to 1 year for the drive unit and 3 years for all other parts. This warranty is limited to the original owner.

Playback Designs will pay for return shipping charges (domestically) back to the owner when the product is sent to Playback Designs within the first 30 days after purchase and the fault can be confirmed by Playback Designs. Otherwise, owner will be responsible for all shipping charges to and from Playback Designs. International customers must deal with their local dealer or distributor.

For all warranty claims, a copy of the original invoice must accompany the product. Opening the product or modifying it in any way by the owner, including but not limited to cryogenic treatment, will void any warranty.

Please contact Playback Designs for a RA (Return Authorization) number and shipping instructions before shipping any product to Playback Designs.

Playback Designs products are sold worldwide through authorized dealers with restricted territories. If any Playback Designs product is purchased from non-authorized dealers or from a dealer selling outside his / her authorized territory all warranties will be void.

If you purchased this product from a dealer please take a moment and send us an email to [support@playbackdesigns.com](mailto:support@playbackdesigns.com) so we can register you for the warranty. If this product has been shipped to you directly from Playback Designs you are automatically registered.

## BEFORE USING THE PRODUCT

- **What is in the box:** MPS-3 playback system  
Remote control unit with mounted batteries  
USB cable  
Power cord (110V versions only)  
User manual
- **Registration** If you purchased this product from a dealer please take a moment and send us an email to [support@playbackdesigns.com](mailto:support@playbackdesigns.com) so we can register you for the warranty.
- **Installation:** The AC voltage supplied to the unit should match the voltage rating indicated on the rear panel.  
Do not place the player on the amplifier or any other equipment that generates heat.

As the player may become warm during operation, always leave sufficient space around the player for ventilation. Always allow adequate air circulation around the player.

During operation, the disc rotates at high speed. Do not lift or move the player while the disc is spinning. Doing so may damage the disc or the player.

When moving the player, make sure to remove the disc and close the disc tray. Then turn off the power and disconnect the power cord.

- **Types of discs:**



CDDA:

- 12cm or 8cm discs
- 16bit / 44.1kHz PCM digital audio

CD-R/RW discs recorded in Audio CD format and finalized correctly are playable. But depending on the quality of the disc and the recording, some CD-R/RW discs may not be playable. Discs that are not finalized cannot be played.

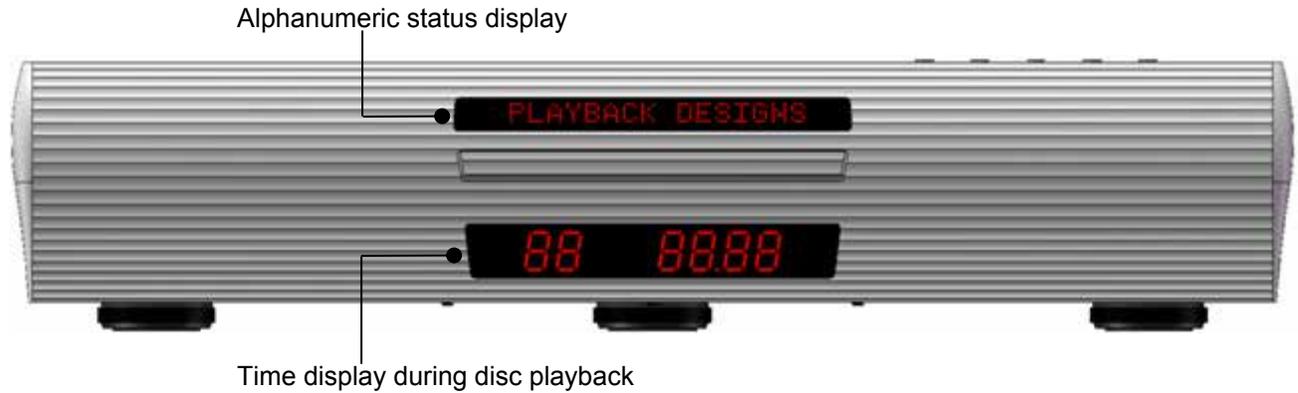
The following discs cannot be played: DVD, CD-G, Data part of CD-EXTRA, PHOTO CD, CD-ROM, DVD, SA-CD. Trying to play these discs may result in loud noises and may damage your speakers and your hearing.

**Warning:** Never use a stabilizer on the discs as they will damage the mechanism and cause them to malfunction.

- **Shipping screws** **The CD mechanism is secured with 2 screws to prevent any damage during shipping. Before use turn the MPS-3 upside down and remove the 2 Philips head screws on the bottom of the player. Keep them in a safe place and put them back in every time you move or ship the player.**

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## FRONT PANEL FUNCTIONS AND REAR CONNECTIONS



- Buttons:
-  Open / Close tray
  -  Play / Pause toggle, can also be used to close the tray and immediately start playback.
  -  Stop playback from disc.
  -  Previous track
  -  Next track

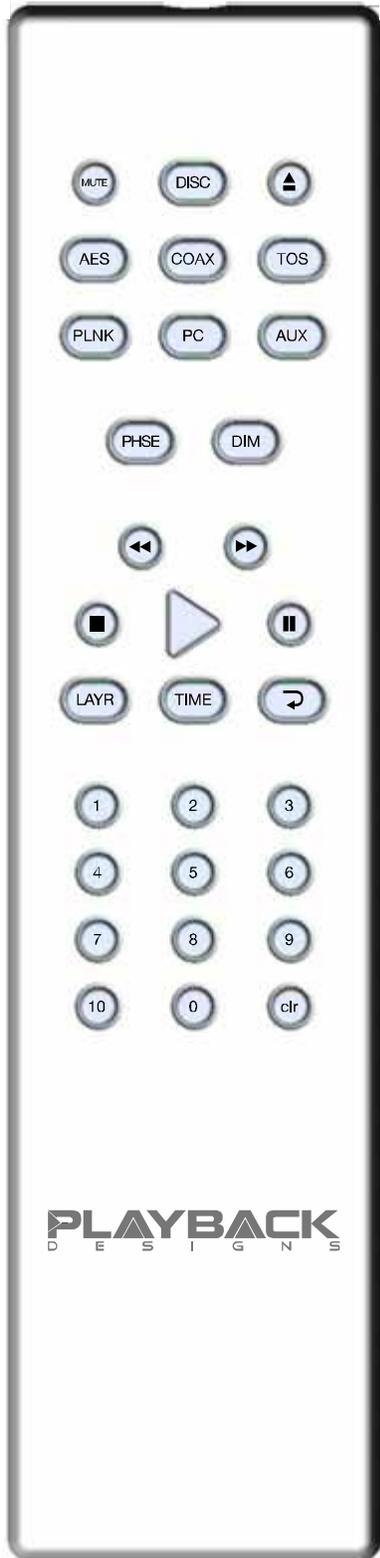


**Analog outputs:** XLR: balanced, 4.6Vrms @ 1kHz full level, pin 2 Hot  
RCA: unbalanced, 2.3Vrms @ 1kHz full level

**Digital inputs:** AES: XLR connector for AES/EBU formatted stereo linear PCM data, up to 24bits and up to 192kHz.  
S/PDIF: same as AES, but S/PDIF formatted on RCA connector.  
PC: Direct USB connection to Windows and Apple based computers for sample rates up to 24bits/384kHz for PCM and 5.6448MHz for DSD.

**Power:** Before connecting the player to the AC mains, please make sure that the rated voltage for the MPS-3 is set correctly as indicated on the rear panel. Operating the player at the wrong voltage will damage the unit. The voltage rating of the power supply cannot be changed by the user.

## REMOTE CONTROL UNIT



**MUTE** Mutes the analog outputs.

**DISC** Selects and activates the drive system.  
**AES** Selects the AES input for conversion to analog.  
**COAX** Selects the COAX input for conversion to analog.  
**PC** Selects the USB input from PC.  
**TOS** No function.  
**PLINK** No function.  
**AUX** No function.

During any input selection other than DISC, the drive system is powered off and requires a few seconds to boot when selected again.



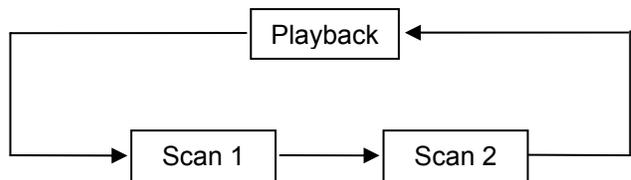
Open / close tray

**PHSE** The first time this buttons is pressed the alpha-numeric display indicates the absolute phase for the analog outputs. If it is pressed again within 5 seconds the absolute phase is toggled.

**DIM** Dims display on front panel.



If these buttons are pressed for less than 1 second they allow you to jump tracks in sequential order. If during normal playback they are held for more than 1 second the player enters Scan Mode, in either forward or reverse direction. Subsequent button presses (short) will increase the Scan speed.



Scan Mode can be exited by repeatedly pressing this button until normal playback, or by pressing STOP or PLAY.



Stops the transport.



Starts playback. Can also be used to close the tray and immediately start playback.



Toggles pause function on and off.

## REMOTE CONTROL UNIT (continued)



**LAYR** No function.

**TIME** No function.



This toggles through 2 Repeat modes:

- Repeat currently playing track
- Repeat entire disc
- Normal playback

### Numeric buttons:

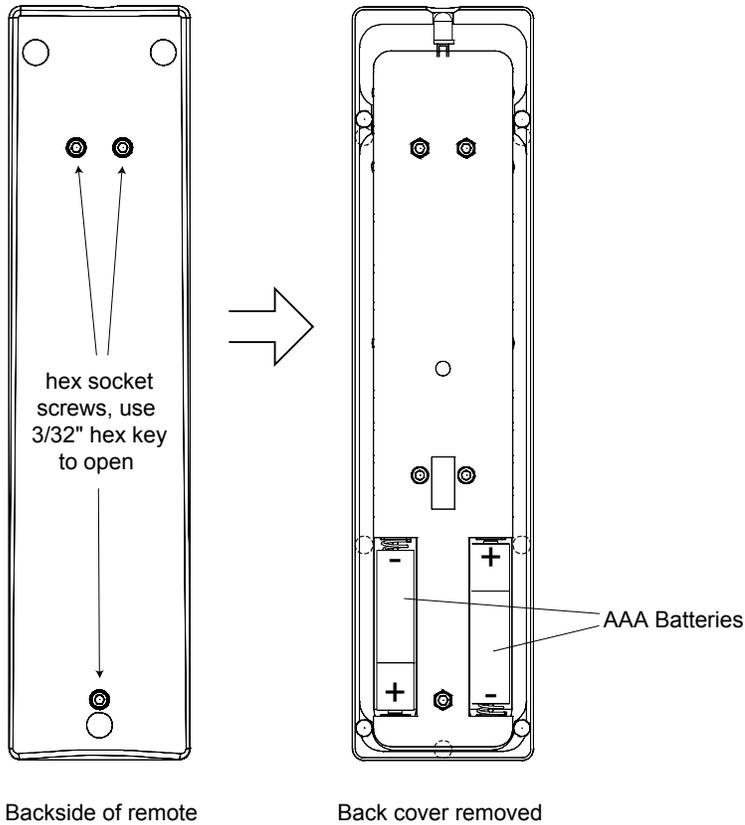
Pressing any numeric button with a single digit will locate the transport to the beginning of the chosen track and start playback, unless the transport is in pause mode when it will stay in pause mode.

The +10 button can be used to access tracks higher than 9. For instance, track 23 can be accessed by pressing:

- +10
- +10
- 3

**CLR** Pressing and holding this button will display the serial number for about 5 seconds. Pressing it again while the serial number is displayed will show the revision number.

## CHANGING BATTERIES ON REMOTE



The remote operates with 2 AAA size batteries. In order to change them the back cover needs to be removed as shown in picture on the left. Make sure that replacement batteries are inserted with their polarities as indicated in the picture. The screws can be opened with a 3/32" hex or Allen key.

## CONNECTING THE MPS-3 TO A WINDOWS BASED PC OR APPLE MAC

**Supported PCM audio resolutions:** all sample rates up to 384kHz and word lengths up to 24 bits.

**Supported DSD audio resolutions:** 2.8224MHz (as on SA-CD) and 5.6448MHz.

**Connection protocol and method:** USB 2.0 / Audio class 2.0 compliant, asynchronous mode where MPS-3 generates high precision clock master and computer is clock slaved.

**PC requirements:** Windows 7 or later  
ASIO compatible player software such as Foobar, MediaMonkey etc.  
USB port, Internet connection for downloading software from [www.playbackdesigns.com](http://www.playbackdesigns.com).

**Mac requirements:** OS X (10.6.6 or later)  
iTunes with or without plug-in to automate sample rate switching.  
USB port, Internet connection for downloading software from [www.playbackdesigns.com](http://www.playbackdesigns.com)

In order for your computer to communicate with the MPS-3 and to exchange audio data custom driver software needs to be installed before you can connect it to the MPS-3. If your computer is a Mac running OSX 10.6.6 or later you don't need any driver software as OSX already supports all PCM formats up to 384kHz sample rate. DSD file playback is supported via the DoP standard using PCM frames which is also supported by OSX without any additional driver. A driver has to be installed on all Windows based PCs for any kind of audio playback via the MPS-3.

### IMPORTANT NOTE FOR PC USERS:

The Windows operating system is by design not a real-time system. It is designed to allow certain processes to take time away from real-time processes such as playing audio. This can result in audible dropouts, sometimes very short, but sometimes also quite long. Some PCs are pre-configured with drivers and processes by the manufacturer that cause such dropouts, and others are user-installed with additional software that do not allow flawless real-time playback of audio. Fortunately, there is a free utility software that allows you to test your PC for real-time capability:

1. Go to: [www.thesycon.de/deu/latency\\_check.shtml](http://www.thesycon.de/deu/latency_check.shtml) and download the utility program DPC Latency Checker. There is also a good description of the program and some more technical background on the same website.
2. Run DPC Latency Checker.
3. If you see yellow or red bars, the program will already tell you that most likely your PC will have dropouts when playing audio. Follow the instruction on the same website for how to identify a driver or process preventing real-time playback. Leave the program running for 10-15 minutes and if you see only green bars and no message then your PC is good to go.

If you are considering purchasing a new PC, this utility program is small enough and doesn't require any installation which allows you to load it onto a flash stick and test it on the PC you are thinking about buying. Most computer stores will allow this test.

### Driver software installation and first time connection:

1. Do not connect the MPS-3 to the computer yet.
2. Turn on your computer.
3. Windows PC users only: Launch your favorite internet browser and navigate to [www.playbackdesigns.com](http://www.playbackdesigns.com). Use "USBAudio" for password to enter the software download section. Download the latest driver:
  - akdesigndrv.zip for PC. Unzip it to the desktop.
  - No driver software is required for the Mac platform

4. Windows PC users only: Double click on:



akdesigndrv.exe (PC)

and follow the instructions on your screen. This will install the driver necessary to communicate with the Playback Designs products via USB.

5. Once the driver is successfully installed you can turn on the power on the MPS-3.
6. Select PC input from the remote control.
7. Connect the USB cable that was included with the MPS-3 between MPS-3 (PC on rear panel) and your computer.
8. The computer will take a moment to enumerate the MPS-3 on its USB bus and notify you when it is installed successfully. Do not attempt to play anything before the computer tells you that the device is ready to use. You can check successful driver installation and connection:

- On the PC in the device manager (below), where the driver will show up as AKDesign USB Audio under the Sound, Video and Game Controllers tab. It will not be listed in the Sound Control panel
- on the Mac in the Sound Control panel (below), where the MPS-3 should be listed as an audio output device



9. For PC users only: Configure your player software to send audio data to the ASIO interface. Depending on your player software this may be identified as “AKDesign USB ASIO” or simply as “ASIO”. Some players may need a plug-in for ASIO compatible playback.
10. For Mac users only: launch iTunes.
11. For best performance and bit perfect reproduction make sure to set all volume controls in the computer playback software, Windows / OSX control panel to exactly 0db (wide open), turn off all operating systems sounds, effects or equalizer that might be running in your playback software or Windows / OSX. Control the volume only with your analog pre-amp.
12. Your system is now ready for high resolution playback.

**Re-connection after system has been previously configured:**

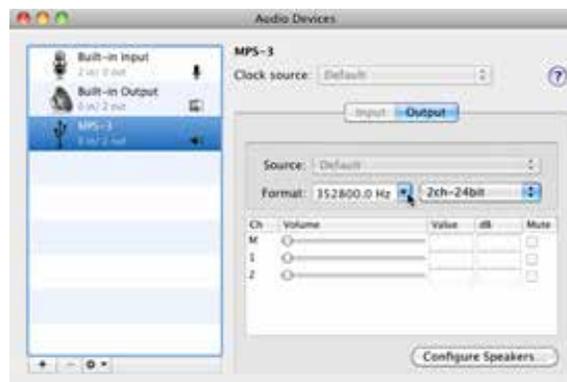
1. Power on both computer and MPS-3. Select PC input on MPS-3.
2. Connect USB cable.
3. Enumeration should be quick on Windows and about 10 seconds with Mac and may not indicate anything except with failure. You may hear the relays clicking inside the MPS-3 as the computer sets the sample rate.
4. For best performance and bit perfect reproduction make sure to set all volume controls in the computer playback software, Windows / OSX control panel to exactly 0db (wide open), turn off all operating systems sounds, effects or equalizer that might be running in your playback software or Windows / OSX. Control the volume only with your analog pre-amp.
5. Your system is now ready for high resolution playback.

**During playback with PC**

When changing songs from within your computer player software the USB protocol automatically communicates all necessary sample rate changes to the MPS-3. The front panel of the MPS-3 always indicates the true sample rate during file playback. This system will never perform any sample rate conversion or any signal processing that could adversely affect the sonic performance, but rather use the exact bits from your file and convert them directly to analog.

**During playback with Mac**

The native OSX operating system and iTunes do not understand the needs of audiophile consumers and insist on sample rate conversion. When connecting the MPS-3 OSX will automatically select the highest possible sample rate (384kHz) and convert all your songs to this rate before playing them out through USB. This will result in degraded performance. You can manually select the sample rate in the Audio/MIDI Setup utility to correspond with the native sample rate of the song (as shown in picture), but this can be a tedious process if your library contains songs with more than 1 sample rate. Alternatively, 3<sup>rd</sup> party plug-ins for iTunes exist that automate this process and always select the correct sample rate for bit perfect playback.



Check our website [www.playbackdesigns.com](http://www.playbackdesigns.com) for an updated list of supported plug-ins.

**Playback of DSD files**

The driver software and MPS-3 hardware are designed to support playback of DSD files at 2 sample rates: the standard 2.8224MHz as used on all SA-CDs and the double rate 5.6448MHz as supported by some professional recording equipment. You will need a playback software running on your computer that can read DSD files and play them to the USB driver. On the Mac platform you will have to use a playback software or iTunes plug-in that supports the DoP standard for playing DSD files. Check our website [www.playbackdesigns.com](http://www.playbackdesigns.com) for an updated list of playback software available.

**Testing your system for bit perfect reproduction**

Windows / OSX and your player software offer multiple places for volume control, effects processing, dithering, equalization or sample rate conversion. Generally, these algorithms affect the sonic performance in a negative way, especially in low volume listening levels. It is therefore recommended that all volume controls on your computer are set to exactly 0db (wide open) and all operating system sounds, effects, equalizers and other algorithms are turned off. You should only control volume with your analog pre-amp. In order to test your system to make sure that no hidden control or algorithm on your computer may impact your sonic performance you can play a special test file:

1. Launch your favorite internet browser and navigate to [www.playbackdesigns.com](http://www.playbackdesigns.com). Use "USBAudio" as password to enter the software download section. Download the test file "TestPat352.wav".
2. The test file contains non audible audio, but it is still a good idea to mute your pre-amp.
3. Launch your playback software and play the test file while the MPS-3 is connected via USB and its PC input is selected.
4. If all the controls on your computer are set correctly then the front panel on the MPS-3 will indicate this by displaying "BIT PERF" for 5 seconds at the end of the playback. If it doesn't show this then at least 1 control on your computer is impacting the performance of your system.

### General notes

1. For best performance and bit perfect reproduction make sure to set all volume controls in the playback software, control panel to exactly 0db (wide open), turn off all operating system sounds, effects or equalizer that might be running in your playback software or Windows / OSX. Control the volume only with your analog pre-amp.
2. While the MPS-3 has no problem supporting playback via USB while it is switched to a different input (i.e. disc playback, AES or Coax input) it is a good idea to stop playback on your computer before selecting another input. The clock management in the MPS-3 may not provide the correct frequency to the USB port if it is not selected. The computer software may have a problem with that and may malfunction. So when not listening to the USB input, stop playback on your computer.

### When things do not seem to work

The MPS-3 is a hardware device with very little software inside and if it doesn't show any signs of malfunctioning in other playback modes, it is relatively safe to assume that the problem is either with the USB link or the computer. Generally, you should look for any signs of trouble on your computer first, and don't assume that because your computer may work with someone else's USB DAC, but not with the MPS-3, that the problem is with the MPS-3. The MPS-3 uses different software inside your computer. Here are a few suggestions for what to do:

1. Make sure that the driver is properly installed (PC only). See step 8 under driver installation above for instructions for how to check successful installation and connection.
2. Make sure you use the USB cable that was shipped with the MPS-3. Other USB cables can be used, but they need to be USB2.0 compatible.
3. Disconnect the USB cable and restart your computer.
4. Connect the USB cable while the PC input is selected on the MPS-3. On Mac computers it can take up to 10 seconds to enumerate.
5. On Mac computers it can happen that after successful enumeration OSX selects the internal audio output instead of the MPS-3. This can easily be corrected manually in the sound control panel in System Preferences as shown in this screen shot.
6. If at this point your PC computer still does not play through the MPS-3 and the driver or MPS-3 cannot be identified in the Device Manager (PC) then disconnect the MPS-3 and try re-installing the driver following exactly above instructions.
7. If you are a PC user and are able to play audio, but you hear occasional dropouts, please see IMPORTANT NOTE FOR PC USERS above. You should definitely run the DPC Latency Checker.



## BREAKING IN THE MPS-3

Breaking in the Playback Designs MPS-3 is time consuming but well worth the effort. It would be a mistake to pre-judge the player based on what you might hear at first listen. This is what you can expect to hear at different intervals during break-in:

1. Out of the box: The player will have good clarity, but the highs can be recessed. Bass might appear to be a bit muddy and lacking punch. Soundstage might sound closed in.
2. 50 - 150 Hours: The sound will open up a little bit, but can still sound a bit brittle.
3. 150 - 350 Hours: Midrange will start smoothing out and clarity will increase, but highs might continue to remain recessed. At this point, there probably will not be much change in the bass. You will probably wonder how the Playback Designs converter will ever sound like others have described, but we assure you that you will start to hear substantial changes within another week of play.
4. 350 - 500 Hours: The magic will be starting. Highs will be open and airy. Midrange will appear much more full bodied and natural. Soundstage will be huge and the image presentation will start appearing very holographic. Bass will be incredibly deep and tight with texture and detail galore.
5. Over 500 Hours: The player will continue to change subtly over the upcoming month of usage, but you should be recognizing a very life-like and natural sound.

During break-in when you do not listen to music it is best to feed an external digital audio signal into any of the digital inputs of the MPS-3, rather than loading a disc and setting the drive into REPEAT mode.

## SPECIFICATIONS

### Power Supply

North America model.....AC 120V, 60Hz  
Europe model.....AC 230V, 50Hz

Consumption.....100W max.

Weight.....11kg / 24 lb

Ext. dimensions (W x H x D) 43.5 x 9.8 x 42.3cm  
17.1 x 3.5 x 16.7 inches

Batteries for remote control unit.....2x AAA

### Analog Audio Outputs:

XLR: 4.6Vrms @ 1kHz full level, pin 2 Hot  
RCA: 2.3Vrms @ 1kHz full level

Operating Temperature.....+5°C to +30°C

Operating Humidity.....5% to 85%

Mains fuse: 1.6A / 250V slow blow, 20mm

## CHANGING THE FUSE ON THE MPS-3

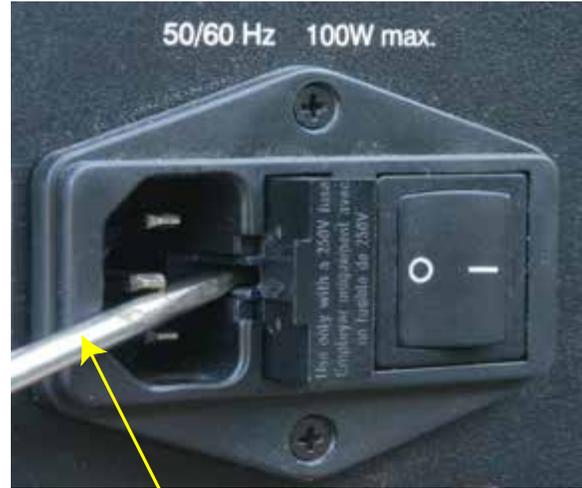
Inside the power connector on the rear panel of the MPS-3 is a fuse that protects the player from dangerous power surges. If the player fails to power up or no light on the front panel is lit then proceed as follows to change the fuse:

1. Locate fuse compartment on power connector on rear panel.



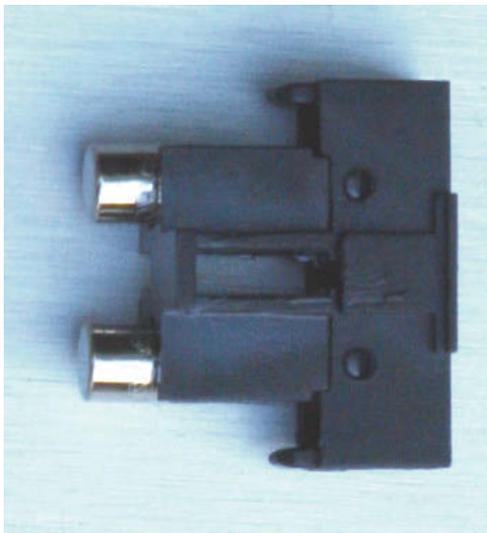
Fuse Compartment

2. Use a small screw driver to pry open the fuse holder.



Prying open with a small screw driver

3. The fuse holder contains 2 fuses. The top one is a spare and can replace the blown one at the bottom.



4. Replace fuse holder into power connector by making sure that good fuse is at bottom. Replacement fuses should be rated: 1.6A / 250V slow blow, 20mm.