



RPM500

User Guide

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User Guide (English)

Introduction

Thank you for choosing the Akai Professional RPM500 bi-amplified studio monitors. The RPM line of loudspeakers build on Akai Professional's legacy of high performance studio monitors, with the dual-driver design providing accurate, high-resolution playback that is free of audible distortion and coloration. This allows you to hear everything that is in your source recordings so that you can create better mixes.

Even if you are experienced with recording and mixing, please take a moment to read through this guide. It will give you valuable information about how to set up your RPM500 monitors and will help you get the most out of your new purchase.

Box Contents

RPM500 Studio Monitor (1)	User Guide
IEC Power Cable (1)	Safety & Warranty Manual
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Support

For complete system requirements, compatibility information, and product registration, visit the Akai Professional website: akaipro.com.

For additional product support, visit akaipro.com/support.

Specifications

Frequency response	50 Hz – 20 kHz (± 3 dB)
Crossover frequency	2.6 kHz
Low-frequency amplifier power	50 W with 20-gauge wiring to this transducer
High-frequency amplifier power	40 W with 20-gauge wiring to this transducer
LF cutoff	flat, 80 Hz, 100 Hz
MF boost	In/Out of 2 dB centered at 2 kHz
HF trim	+2 dB, 0 dB, -2 dB above 3 kHz
Acoustic space	0dB, -2dB, and -4dB
Maximum signal-to-noise (dynamic range)	> 97 dB (typical A-weighted)
Polarity	Positive signal at + input produces outward LF cone displacement
Input impedance	20 k Ω balanced, 10 k Ω unbalanced
Input sensitivity	100 mV pink noise input produces 92 dBA output SPL at 1 meter with volume control at maximum
Power	factory-programmed for either 115V ~50/60Hz or 230V ~50/60Hz
Protection	RF interference, output current limiting; over-temperature; transient on/off protection to prevent speaker "pops"; subsonic filter; external mains fuse
Cabinet	Front and rear baffle 1" MDF with 0.75" MDF wrap. Black lacquer paint on enclosure with soft touch black paint on curved front plate.
Size (width x height x depth)	7.5" x 13" x 9" 190 mm x 330 mm x 230 mm
Weight (monitor + power cable)	17.63 lbs./unit 8 kg/unit

Above specifications subject to change without notice.

Connection Diagrams

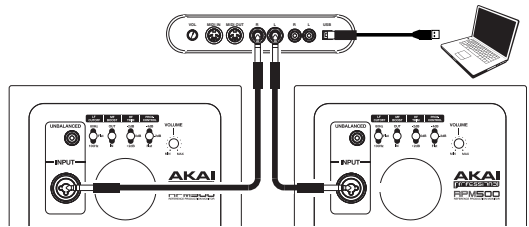
Akai Professional RPM500 monitors feature balanced XLR and 1/4" connectors, as well as unbalanced RCA-type analog inputs. Connect the outputs of your audio interface, mixer, or other line-level device to these inputs.

Note: The XLR/TRS and RCA inputs are summed (i.e., mixed together) before arriving at the RPM amplifier, so it is possible to have two sound sources connected to a speaker at the same time. However, we recommend that not playing audio through both connectors simultaneously, which may overload the inputs and result in clipping (distortion) at the inputs.

Tip: If your mixer, interface, or other audio source features both XLR/TRS and RCA-type outputs, use the XLR or TRS connectors instead of the RCA connectors whenever possible. XLR and TRS cables incorporate a "balanced" design that carries a signal over three conductors ("hot," "cold," and "ground") instead of two conductors as found in RCA cables ("hot," and "ground"). This results in lower noise, higher rejection of radio-frequency (RF) interference, and better overall fidelity. If XLR/TRS jacks are unavailable, use RCA-style cables but try to keep the cables as short as possible.

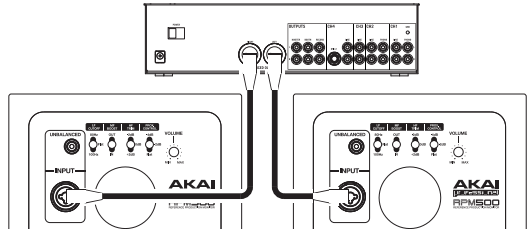
Scenario 1

Audio Interface
(Balanced TRS
to Balanced TRS)



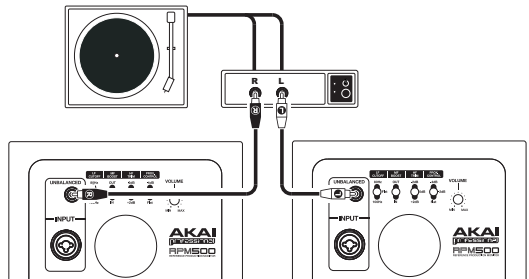
Scenario 2

Mixer
(Balanced XLR
to Balanced XLR)



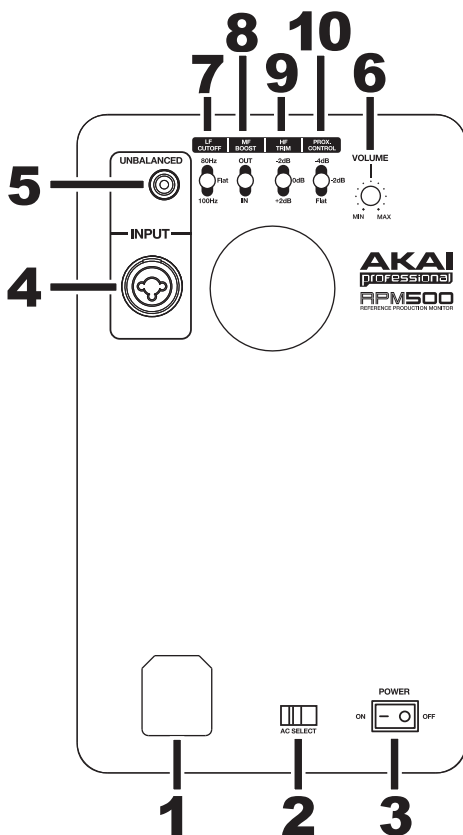
Scenario 3

Preamplifier
(Unbalanced RCA
to Unbalanced RCA)



Features

- Power Connector:** This socket accepts a standard IEC-type power cable.
- Input Voltage Selector*:** This recessed switch adjusts the input voltage from 100-120V or 220-240V and allows your RPM500 monitor to be used worldwide. Make sure this switch is set correctly for your country to prevent damage to the speaker.
- Power Switch:** This switch powers your RPM500 monitors on and off.
- XLR+1/4" Input (+4 dBu)**:** This input jack accepts line-level signals from a balanced XLR or 1/4" TRS connector. Connect your audio interface, monitor controller, mixer, or other line-level audio source to this jack.
- RCA Input (-10 dBV)**:** This connector accepts line-level signals from audio sources with unbalanced RCA-style outputs.
- Volume Knob:** This knob adjusts the gain level of all three of the rear panel inputs (XLR, 1/4" and RCA). The gain is at minimum when the knob is turned fully counter-clockwise; the gain is set to its maximum level when the knob is turned fully clockwise; additionally, the gain is set to unity when at the 12:00 position. Adjust this knob to a position where you are working with a comfortable range of travel on the output volume knob of your connected audio interface, monitor controller, or mixing console.
- LF Cutoff Switch:** This switch sets the low-frequency cutoff point of your monitor. See the **About the Rear-Panel EQ Contour Switches** section to learn more about this switch.
- MF Boost Switch:** This switch allows you to contour the mid-range response of your monitor to your specific studio. See the **About the Rear-Panel EQ Contour Switches** section to learn more about this switch.
- HF Trim Switch:** This switch allows you to adjust the high-frequency response of the monitor to your specific studio. See the **About the Rear-Panel EQ Contour Switches** section to learn more about this switch.
- Proximity Control Switch:** This switch allows you to set a "shelf" EQ to tailor low-frequency response to your specific studio. See the **About the Rear-Panel EQ Contour Switches** section to learn more about this switch.



* Power outlets in North America, Japan, and many parts of South America usually supply between 100V and 120V, whereas outlets in Europe and most of Africa and Asia provide between 220V and 240V. If you are not sure about your region, be sure to check your power outlet's rating and set the Input Voltage selector before connecting and switching on your RPM500 monitors.

** The XLR/TRS and RCA inputs are summed (i.e., mixed together) before arriving at the RPM amplifier. We recommend that not playing audio through both connectors simultaneously, which may overload the inputs and result in clipping (distortion) at the inputs.

Setup

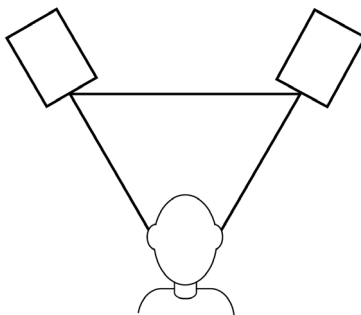
The configuration and placement of your RPM500 monitors on speaker stands or your desktop workstation may affect the performance of the speakers. Use the following tips to achieve the best performance out of your RPM500 monitors.

Tip: *If possible, place your RPM monitors on speaker stands instead of your desk top. Desks tend to resonate sympathetically at low frequencies and may adversely affect the bass response of your monitors. If speaker stands are not possible due to space restrictions and you notice a buildup in bass, try placing the monitors on isolation pads (included) to acoustically decouple the monitors from the desk.*

Speaker Placement

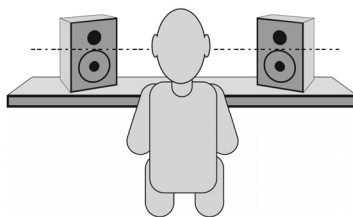
Place the RPM500 monitors so that the two speakers and the engineer form an equilateral triangle when viewed from above. Angle the speakers slightly inward so that the drivers face the engineer.

In general, it is recommended that RPM500 monitors be placed at least one foot away from the nearest wall, ceiling, or any other large, flat surface (the reason for this is covered in detail in the following chapter of this guide). If practical considerations such as limited studio space make this impossible, RPM500 monitors include separate equalizer controls to compensate for placement near walls and corners, as well as to compensate for the general acoustic response of your monitoring environment.



Speaker Height

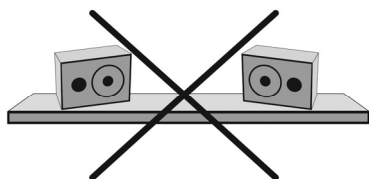
Position the speakers so that they are parallel to the ground and that your ears are between the midpoint of the woofer and the tweeter.



Speaker Orientation

If possible, place the RPM500 monitors in their upright position and avoid laying the speakers on their sides. The RPM500 woofer and tweeter are vertically aligned and will provide the best performance when the speakers are placed upright. Placing them on their sides may create strong reflections from nearby surfaces resulting in spectrally unbalanced sound.

If your RPM500 monitors must be oriented horizontally due to space or line-of-sight considerations, place the speakers so that their tweeter is on the "inside" to improve imaging.



About the Rear-Panel EQ Contour Switches

These switches allow you to tailor the EQ curve of your RPM500 monitors to complement the frequency response of your studio. Since studio monitors (including the RPM series) are designed to have a flat frequency response, you may be wondering why these speakers include additional EQ controls. They are included for three reasons:

1. **Size, shape, and acoustical treatment of your specific studio:** RPM500 monitors are tested and tuned in an anechoic chamber to be as linear (flat) as possible. This means that leaving the switches set to their default settings will closely resemble monitoring in an "ideal" environment similar to those found in high-end recording studios. In these studios, acousticians carefully determine the size and shape of the control room, placement of the studio monitors and large furniture, construction materials of the walls and ceiling, as well as all acoustical treatments that must be applied to various parts of the room. All this ensures that studio monitors will sound as flat and accurate as possible at the "mixing position."

In the real world, however, many project studios are set up in preexisting rooms where the size/shape of the room cannot be easily modified to improve acoustics. This means that the design of the room itself may have adverse effects on the frequency response of the monitors (i.e., sound reflections from flat surfaces in the room may cause the monitors to not sound linear). For that reason, the RPM line features "corrective" EQ controls to compensate for adverse effects that may be caused by your room.

2. **Placement of the RPM500 monitors within your studio:** The proximity of your RPM500 monitors to the walls (and floors/ceilings) may adversely affect the frequency response of what you hear at the mixing position. This is because all speakers radiate low-frequency sounds in all directions—not just toward the mixing position. If there are large, flat surfaces (such as walls or ceilings) within one foot of the speaker, these surfaces act as low frequency "sound reflectors" that return bass energy projected from the rear of the speaker back into the studio. This can result in bass that sounds "tubby" and exaggerated.
3. **Using a subwoofer:** If you plan to use a subwoofer with your RPM500 monitors, you will need to filter out low-frequency sounds so that only the subwoofer plays low-frequency sounds (the RPM500 monitors will only play mid-range and high-frequency sounds, in this scenario). This needs to be done so that the subwoofer and RPM500 monitors do not both play the same low-frequency sounds, causing a greatly exaggerated bass response within your studio.

The RPM line of monitors address all three of these issues with the following controls:

Proximity Control Switch

As stated earlier in this section, your RPM monitors should ideally be placed at least one foot away from the nearest wall, ceiling, or other large, flat surface. In the real world, this may be impractical due to space limitations within your studio. For that reason, RPM monitors feature a Proximity Control Switch. This switch compensates for placement near walls by "shelving" (reducing) frequencies below 200 Hz. This switch should be set as follows:

- **0dB:** This default setting should be used if the monitors are placed at least one foot away from the nearest wall.
- **-2dB:** This setting reduces frequencies below 200 Hz by 2dB. Use this setting if the speakers must be placed closer than one foot from the nearest wall.
- **-4dB:** This setting reduces frequencies below 200 Hz by 4dB. Use this setting if the speakers must be placed within one foot of the corner of a room (i.e., the intersection of two walls).

Tip: Be sure to leave at least 3" of space between the rear of the speaker and a wall to allow the rear-firing port to "breathe" properly. Placing the speaker any closer than 3" may adversely affect low-frequency response.

HF Trim Switch

This control allows you to boost or attenuate (reduce) your RPM500 monitors' high-frequency response above 3 kHz. This switch can be set in the following ways:

- **0dB:** This default setting leaves high-frequency signals unaffected (high-frequency sounds are neither boosted nor attenuated).
- **+2dB:** This setting boosts signals above 3 kHz by 2 dB.
- **-2dB:** This setting attenuates signals above 3 kHz by 2 dB.

To configure the HF Trim switch, begin by mixing a few songs with this knob set to the default **0dB** position. If your mixes sound good in the studio and on other speakers (car stereos, "multimedia" computer speakers, etc.), leave this switch in the default position.

If your mixes sound good in the studio but they sound "dull" and lack high-frequency "sparkle" on other playback systems, set the switch to **-2dB**.

Alternatively, if your mixes sound good in the studio but sound too "crispy" or "brittle" and contain too much high-frequency content, set this switch to **+2dB**.

Setting this switch to either **+2dB** or **-2dB** allows the RPM500 monitors to compensate for a mixing environment that is either too "live" (i.e., too much high-frequency reflection from the walls and other surfaces) or too "dead" (i.e., not enough high frequency sound is being reflected around the room).

MF Boost Switch

This control engages a mid-range boost from 1 kHz – 3 kHz with a 2 dB peak at 2 kHz. The switch can be set in the following ways:

- **Out:** This default setting allows incoming signals to bypass the midrange boost circuitry (the midrange of a signal is not affected).
- **In:** This setting engages the midrange boost circuitry and creates a 2dB peak at 2kHz with a 1 kHz bandwidth (i.e., signals between 1.5 kHz - 2.5 kHz are boosted).

To configure the switch, leave the switch set to the **Out** position and mix a few songs. If you notice your mixes sound good in the studio but the midrange tends to be too prominent (e.g., the vocals/guitars are too loud) on other speakers, set the knob to **In**. This will make the midrange of your RPM500 monitors slightly more pronounced in the studio and will result in more balanced mixes since you will be less inclined to "push" the midrange of your mixes.

LF Cutoff Switch

This control allows you to engage a high-pass filter that removes low-frequency sounds from the monitors. This switch can be set in the following ways:

- **Flat:** This default setting allows your monitors to play their entire frequency spectrum with no low-frequency filtering.
- **80Hz:** This setting engages a second-order (12dB/octave) filter that rolls off frequencies below 80 Hz.
- **100Hz:** This setting engages a second-order (12dB/octave) filter that rolls off frequencies below 100 Hz.

If you are using your RPM monitors with a subwoofer that does not have a built-in crossover, set this switch as close as possible to the low-pass cutoff frequency of your subwoofer. The low-pass cutoff of the subwoofer should be listed in the "technical specifications" section of the subwoofer's User Guide.

If your subwoofer has an internal crossover that sends high-frequency signals out to your main monitors through a pair of outputs, leave the LF Cutoff Switch on your RPM monitor set to **Flat**.

***Tip:** Many subwoofers feature a low-pass cutoff frequency of 80Hz. If you are not sure about your subwoofer, use this setting as a starting point.*

***Tip:** The Low Cutoff switch can also be engaged if you wish to hear what your mixes would sound like on speakers with smaller woofers (such as those found in most televisions).*

