STEREO POWER AMPLIFIER

P-4500

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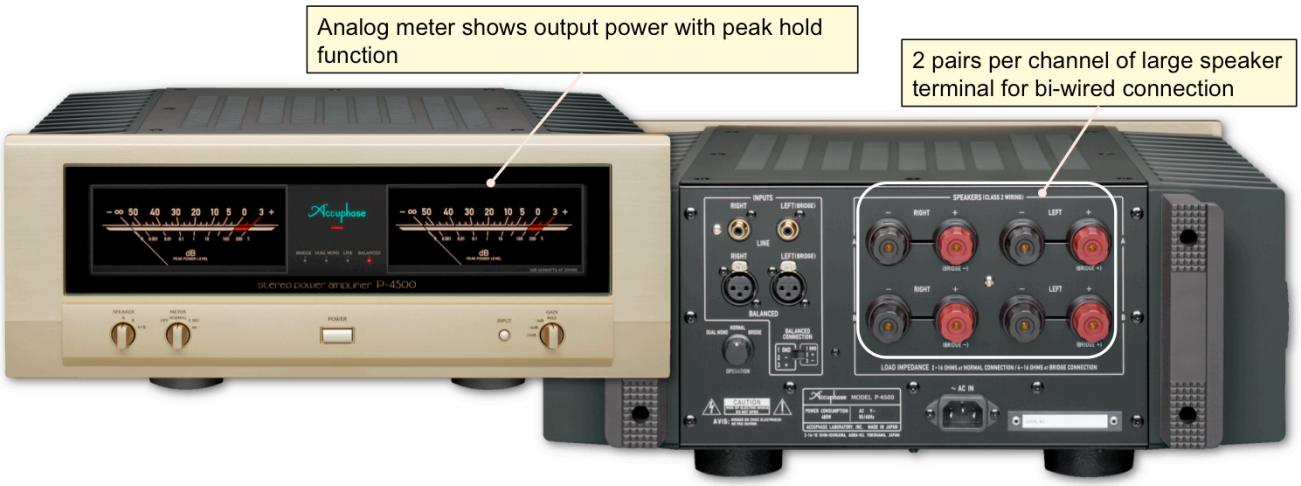
Since it started from P-300 in 1973, during the past half century, the history of Accuphase Power Amplifiers is continually evolving with a wide range of variations as Monophonic, Class-A and Class-AB.

P-4500 is the succession model of P-4200 launched in 2013. This new model is a direct descendant of the first P-300, not only acting as a strong introduction but realizing the great electrical performance and sound quality coming close to the flagship A-250.

P-4500 features best-in-class low noise and high damping factor performance, and with the enhanced power output stage, it enables to perfectly drive the modern high-end loud speakers.

Thanks to the enough margin of separate system, new P-4500 clearly expresses the dynamics and excitements of music sources, and it also offers the best performance in all kinds of environments.

Front and rear view



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Unit dimensions are same but the mass is 300g heavier than former model P-4200.

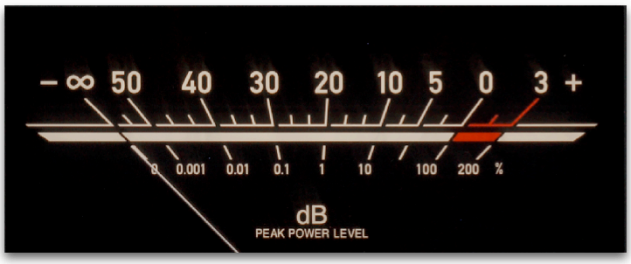
Users are able to switch output to speaker pairs A and B depending on their preferences.

New painting processes are applied on the top plate and heat sink. It helps to enrich the texture.

Front display

- Graceful motion with higher sensitivity meter index
  - P-4200: 40dB minimum ➡ P-4500: 50dB minimum

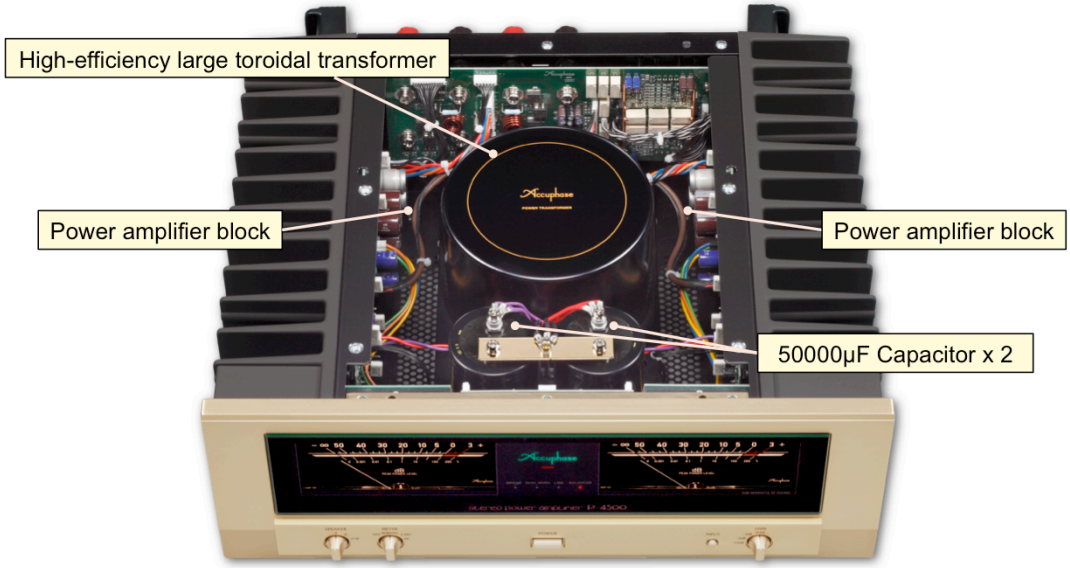
P-4200



P-4500

High-sensitivity needle power meter creates an elegant ambience with the swing at lower levels less than -60dB.

Internal view



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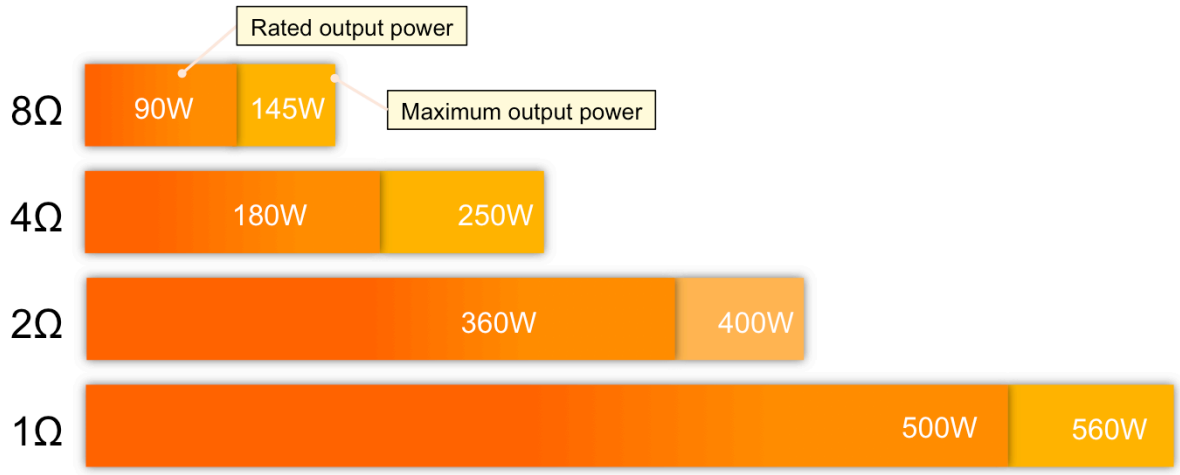
Accuphase traditional symmetry layout keeps the power supply section centered with power amp blocks on both sides.

Newly designed massive toroidal transformer realizes the higher efficiency, less heat generation during high output, and better reliability than P-4200.

Custom-made large filtering capacitors increase the capacity from 47000uF to 50000uF, Accuphase choose the best ones after hundreds of trials and tunings.

Output power

- 145W / 8Ω, 560W / 1Ω Maximum Output Power



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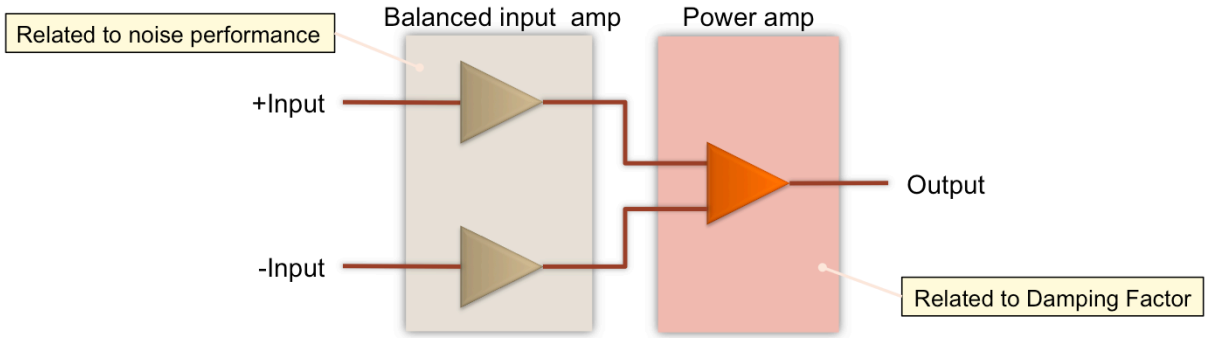
The continuous average output power(rated output power) is 90W into 8Ω load.
However, its actual maximum output power is bigger, saying 145W into 8Ω and 560W into 1Ω load.

**Rated output power is same as P-4200.

Highlights of electrical performance

- Ultra low noise
- Super high *Damping Factor



P-4500 Instrumentation amplifier configuration

*Damping Factor: A index of speaker driving ability

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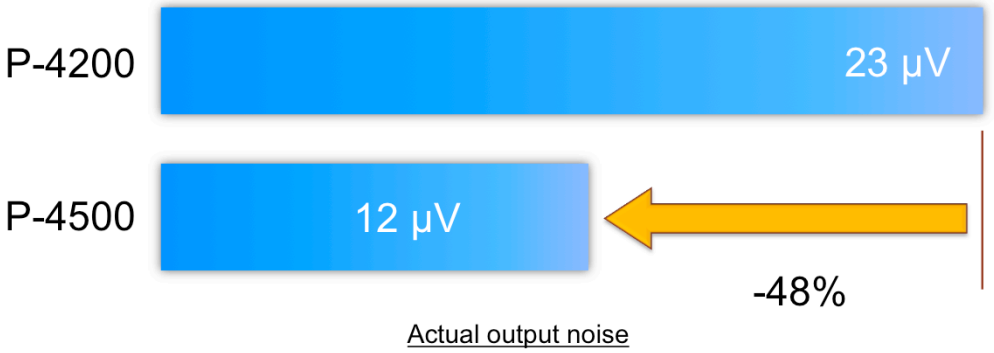
The performance highlights of P-4500 are “Ultra low noise” and “Super high Damping Factor”.

The P-4500 features the latest instrumentation amplifier topology. It consists of a complete balanced input amplifier block and a power amplifier block.

The balanced input amplifier block is related to the noise performance and the power amplifier block is related to the Damping Factor.

Ultra low noise

- 48% lower than the former model
  - S/N ratio: 121dB guarantee @Maximum-gain



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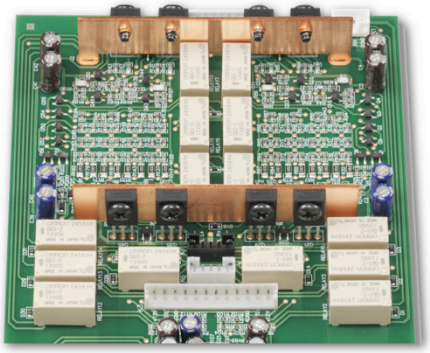
The former model P-4200 has the excellent noise performance.
However, P-4500 achieves even 48% lower output noise voltage than P-4200.

P-4500 guarantees,
SN ratio: 121dB @Maximum-gain

Technology for ultra low noise

- Fully discrete configuration “Balanced input amplifier”
  - Using low noise transistor in input stage



Balanced input amplifier

The output noise is also reduced by the fully discrete configuration amplifier which no ICs are installed on the signal paths.

This makes it possible to allocate a high gain of 22dB to balanced input amplifier section and conversely keep the gain of the power amplifier section to a low 6dB.

As a result, the noise influences at both the signal input stage and power amplification stage are minimized, and this realizes an astonishing noise reduction.

Super high Damping Factor (D.F.)

- 40% higher than the former model

Guaranteed D.F.

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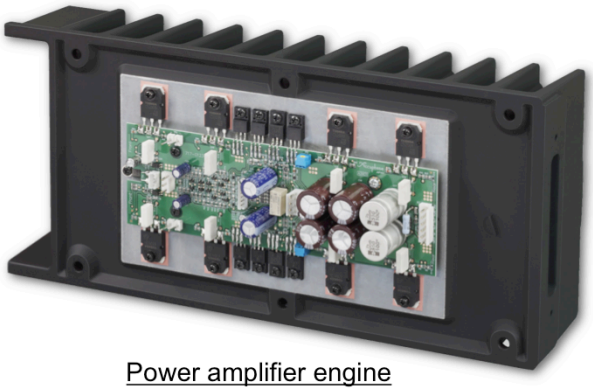
P-4500 has the guaranteed 700 of Damping Factor.
It is 40% higher than the former model P-4200.
The actual value is in excess of 800.

**Damping Factor:
A index of speaker driving ability.
Higher Damping Factor amplifier has higher speaker driving ability.
D.F. = 8Ω / Output-impedance

Technology for super high D.F.

- Enhanced output stage for power amplifier engine
  - 3 parallel (P-4200) ➡ 4 parallel (P-4500) push-pull output stage



Power amplifier engine

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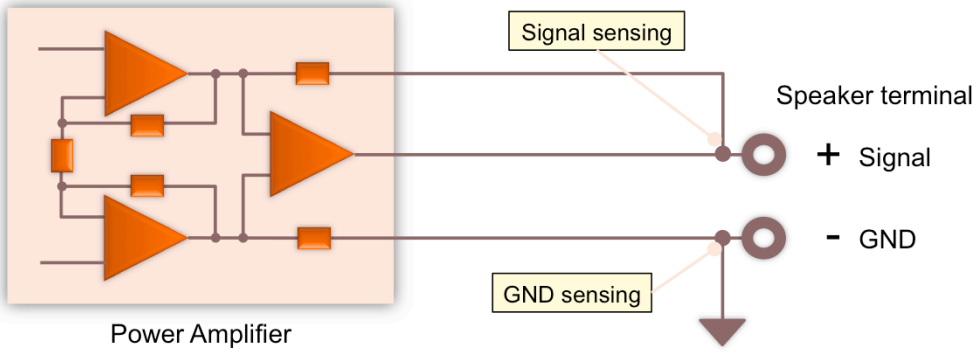
4 Bi-polar transistors pair are installed in a parallel push-pull configuration though P-4200 was 3 parallel push-pull, this contributes to reduced output impedance and higher Damping Factor.

Also, while generating high output power, the electrical load per pair is dispersed and this enables the amplifier to provide the stable power to loud speakers.

Technology for super high D.F.

- Balanced Remote Sensing
  - Feedback from nearby speaker terminals
  - Signal-line and GND-line sensing



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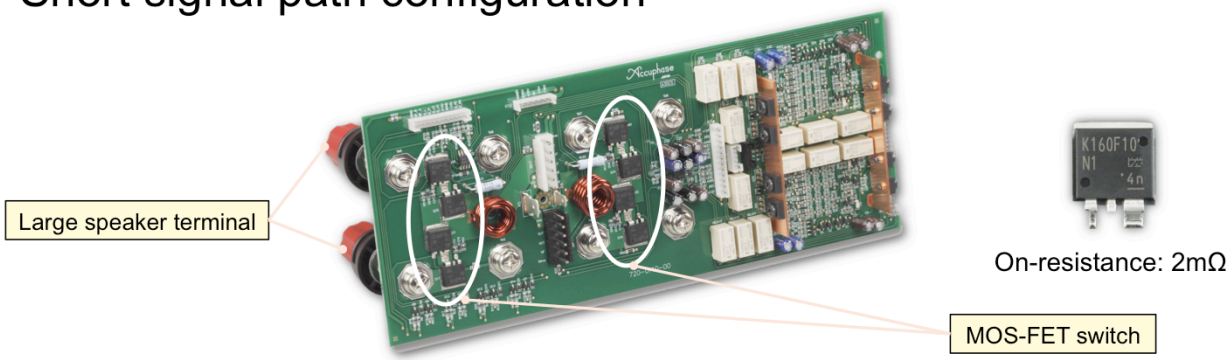
Remote Sensing is the technique to lower the output impedance of amplifier by the negative feedback with signal sensing from nearby the speaker terminals.

Balanced Remote Sensing is the technique to make the output impedance even lower by both the signal sensing and the GND sensing, that is the negative feedback of GND level.

Not only Damping Factor, but also Total Harmonic Distortion and Intermodulation Distortion are all improved by the Balanced Remote Sensing.

Technology for super high D.F.

- Speaker protection equipped with MOS-FET switch
- Using very low resistance components
- Short signal path configuration



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Mechanical relays are the common components for speaker protection but the super high Damping Factor is achieved by the lower impedance component.

As the contact resistance of mechanical relay is higher than people think, Accuphase has chosen the MOS-FET switch instead of conventional mechanical relays for speaker protection.

*On-resistance of MOS-FET used for P-4500: 2.0mOHM (MOS-FET for P-4200 : 2.1mOHM)

Thanks to the MOS-FET switch, the Damping Factor, reliability and sound quality are all improved.

The large speaker terminals are directly mounted on PCB, this enables to draw the shortest signal paths. P-4500 is the amplifier which aims thorough low impedance drive.