

CLASS-A STEREO POWER AMPLIFIER A-48S



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In 2006, Accuphase introduced the A-45, a middle-class Class-A power amplifier. The 45W of power output from its affordable size can comfortably drive any kinds of speaker. The A-48S is the fifth generation pure Class-A power amplifier after the A-48, which was released in 2019.

The technical topics of the A-48S are enhanced power, increased drive capability, and lower noise performance. It outputs 50 watts at a speaker impedance of 8 ohms and another 200 watts at 2 ohms linearly. The damping factor is 25% higher than the former model, and the noise is 6% lower. Of course, the evolution of safety and reliability cannot be overlooked.

The A-48S, with its Class-A tone and instantaneous sound, perfectly reproduces even the subtle but exquisite expressions and emotions of music.

Dimensions and Weight

- Unit dimensions are the same as A-48
Weight is slightly heavier

- Width 465mm
- Height 211mm
- Depth 464mm
- Weight 34.8kg



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** A-48: Width 465mm, Height 211mm, Depth 464mm, Weight 33.0kg

Front and Rear View



Front View



Speaker, Meter Display Selector



Gain Selector



Aluminum Top plate



Rear View

Two pairs of large speaker terminals

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The A-48S is equipped with large analog “needle” meters which offer output power monitors with good visibility. They are high-sensitivity of the -50dB indicator, which allows you to enjoy the upbeat needle move even under the low-volume operation.

We also put the gain selector in the front panel, You can choose the appropriate gain level from the 4 settings, “Max, -3dB, -6dB, and -12dB.”

The A-48S also has two independent speaker terminals, makes you easily use different types of speakers.

The gain switching does not attenuate the signals with an attenuator. The gain is controlled at the input amplifier section, making the power amplifier section stable and reducing the residual noise when using high-efficiency loudspeakers.

Internal View



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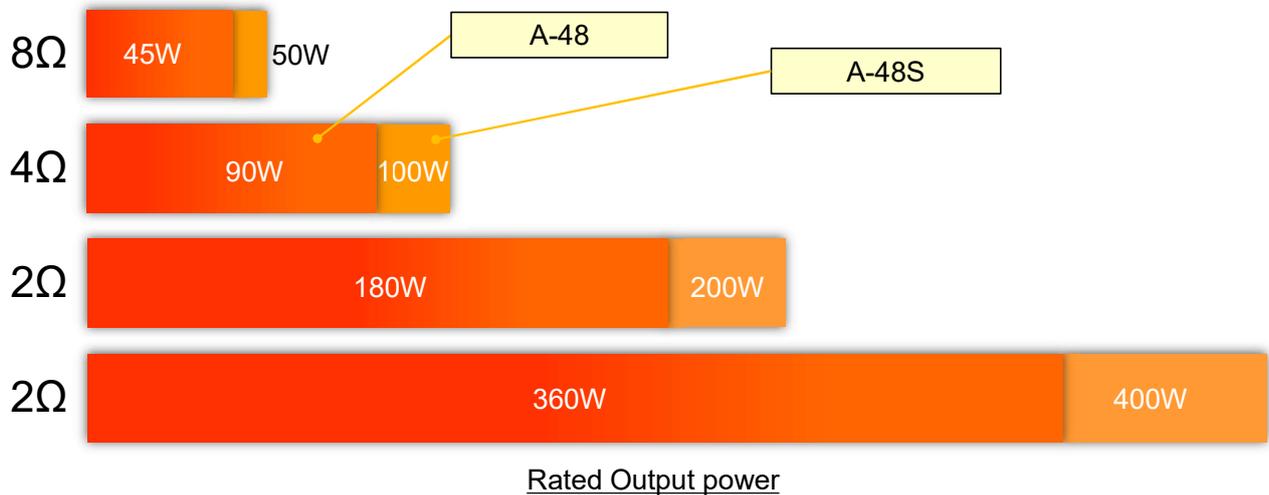
A-48S has a mono-block construction.

It contains an intense power supply with a massive, special-made, and high-efficiency toroidal transformer and two sizeable 68000µF filtering capacitors in the center of the unit.

In addition, the two power amplifier engines are kept separate for the left and right channels.

Output Power

- Class-A 50W / 8Ω, 200W / 2Ω



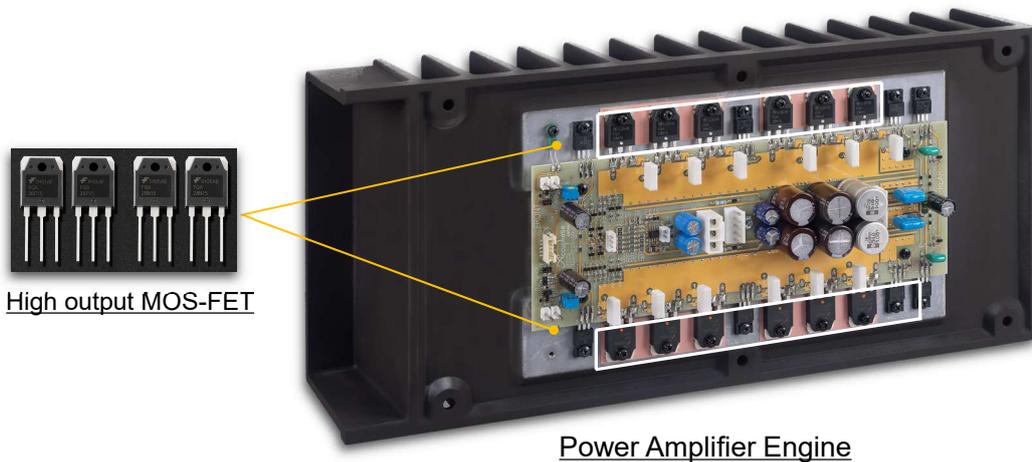
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The high-power design provides the rated output power of 50W/8Ω, 100W/4Ω, and 200W/2Ω that vastly exceeds conventional models, securing an overwhelming dynamic range.

Technology for High Output Power

- 6 Parallel outputs equipped with high power MOS-FETs



High output MOS-FET

Power Amplifier Engine

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The A-48S power amplification stage uses a 6-parallel push-pull power transistor architecture. By connecting output elements in parallel, the output impedance is lowered to improve the driving capability. And the same time, the load per transistor is reduced and it enables power to be supplied with a margin of safety under all conditions.

Ultra Low Noise

- High power but low noise
 - SN ratio: 118dB guarantee (A-48: 117dB)



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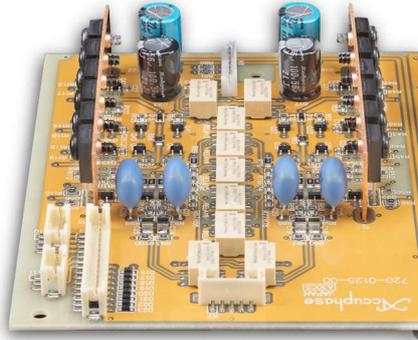
The noise performance of the A-48S is remarkable compared with the former A-48.

With the state-of-the-art circuitry, the A-48S improves noise level suppression by 6% over the previous model as guaranteed spec.

The guaranteed SN ratio achieves 118dB, which is 1dB of performance improvement over A-48.

Technologies for ultra low noise

- Instrumentation Amplifier architecture
- Balanced signal transfer with the optimization of gain distribution



Signal Input Section



Balanced Input Module

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With balanced circuits in the signal input section, the amplification stage entirely comprises an instrumentation amplifier principle that equalizes input impedance on the + and – sides for excellent external noise suppression and provides optimal circuitry for this high-end audio amplifier.

Noise Level suppression has been dramatically improved with excellent figures, assigning a high gain (12.6x) in the signal input section.

Super high Damping Factor

- Increase Damping Factor for high driving ability
 - Damping Factor: 1000 guaranteed



Guaranteed Damping Factor

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The A-48S achieves 1000 of guaranteed Damping Factor, significantly improved driving capability compared to previous models. This value is the same as the top models A-300 and A-80

*Damping Factor, DF: The damping factor is an index of speaker driving ability. A Higher Damping-Factor amplifier has a higher speaker driving ability. $DF = 8 \text{ ohm} / \text{Output-impedance}$

Technologies for super high Damping Factor

- Speaker protection equipped with MOSFET switch circuit
- Short signal path configuration



Large speaker terminals



Protection circuit Assembly



MOS-FET switch
On-resistance: 1.0mΩ

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Mechanical relays are the typical components for speaker protection. Still, the contact resistance of mechanical relays is higher than people think.

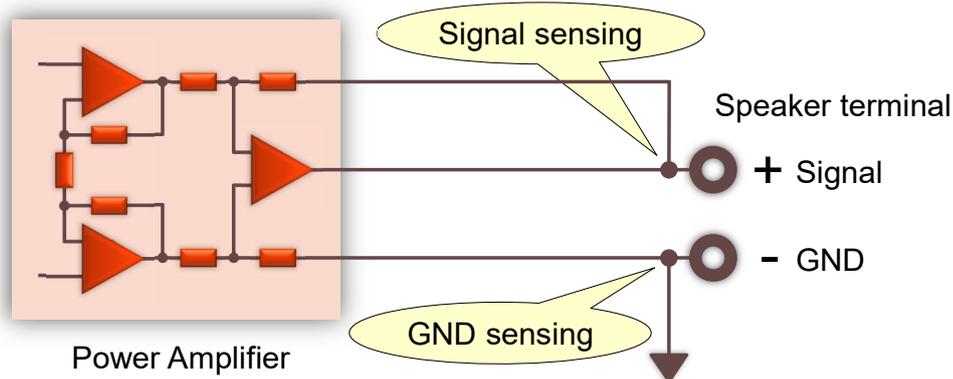
Therefore, Accuphase has chosen the MOS-FET switch instead of conventional mechanical relays for speaker protection.

Thanks to this MOS-FET switch, the damping factor, reliability, and sound quality are improved.

A-48S employs carefully selected very low-impedance components such as the large speaker terminals. Making signal paths thick and short also helps to attain low impedance.

Technology for super high Damping Factor

- Balanced Remote sensing
 - Feedback from speaker terminal proximity
 - Signal-line and GND-line sensing



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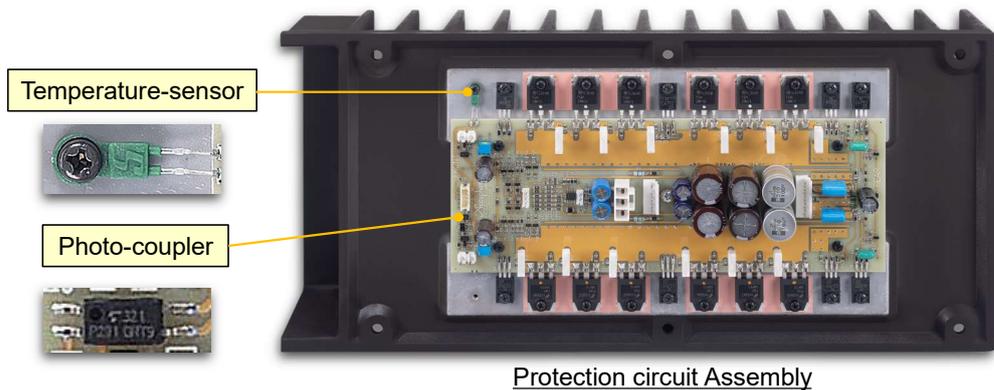
“Remote Sensing” is the technique to lower the output impedance of the amplifier by the negative feedback with a signal sensing from nearby the speaker terminals.

“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 the GND level.

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

Pursuing further product safety and reliability

- Power amplifier
 - Protection circuit using Photo-couplers for terminal short
 - Temperature sensors are installed on the heatsink



Protection circuit Assembly

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The newly designed output protection circuit can detect any short-circuiting of the speaker terminals with due consideration for product safety.

Temperature sensors that detect the heatsink temperature are installed. Thanks to this, the unit accurately ascertains the high-temperature alarm in the power amplifier section.

Thanks to the photo-coupler, the detected signal is completely isolated from the output signal to minimize the adverse effects on the sound quality.

******When these protection circuits are activated, the unit completely interrupts speaker output. It makes the power meters blink to indicate the abnormal condition.