

Accuphase

STEREO POWER AMPLIFIER

P-7300

- Output stage with 10-parallel push-pull arrangement in each channel delivers ample power down to extremely low load impedances of 1 ohm
- Amplification stage features low-noise instrumentation amplifier topology
- Further refined MCS+ circuit
- Current feedback principle combines excellent sound quality with total operation stability
- Bridged connection mode allows upgrading to monophonic amplifier
- 4-stage gain control
- Newly developed massive toroidal transformer with high power capacity





A Stereo Power Amplifier That Towers Over the Rest—Witness the ultimate in Class AB topology. Bringing together the best of Accuphase technology and sonic expertise, the P-7300 stands out both in terms of performance and sound quality. The instrumentation amplifier principle realized in an ideal fully balanced configuration ensures S/N ratio second to none. Plenty of muscle from the output stage is sustained by a newly developed power supply, resulting in impeccable speaker drive that opens up a new chapter in the art of music reproduction.

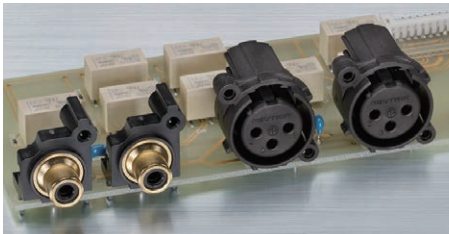
Ever since the company's founding, Accuphase stereo power amplifiers have always been at the very forefront of the global high-end audio scene, blazing a continuous path of technical and sonic innovation as demonstrated by many products that have made history. The P-7100 introduced in 2006 was a top-of-the-line stereo power amplifier that gained overwhelming recognition both in Japan and overseas. Now, nine years later, the P-7300 is poised to top that achievement, representing a full model change incorporating latest technology and specially selected ultimate quality parts. The new product is destined to become another milestone against which others are measured, offering a musical experience on a whole new plane.

The P-7300 inherits technology features and concepts of the 40th anniversary commemorative model A-200 and subsequent M-6200 and takes these even further. Some of the highlights are a drastic reduction in noise and a significant further improvement of the damping factor. In the final stage, the parallel configuration of output devices ensures high current capacity and keeps the output impedance of the power amplifier extremely low. In addition, intensive research has culminated in an improved NFB loop with remote sensing, and the use of MOS-FET switches characterized by low 'on-resistance'. This further improves the ability to handle any speaker with competence, realizing constant-voltage drive even with extremely low load impedances. The guaranteed damping factor of at least 1,000 demonstrates the impressive success of this approach. In addition, by further refining the parallel drive and gain allocation of the input stage, Accuphase engineers were able to push the noise floor to previously unthinkable levels, achieving an amazing signal-to-noise ratio of 125 dB at maximum gain and 131 dB at the -12 dB gain setting.

The massive aluminum diecast heat sinks arranged on the left and right side of the amplifier are in direct contact with external air to maximize heat dissipation efficiency. At the same time, they are integrated with the panel and chassis, resulting in superior rigidity of construction. The large analog meters on the front feature a new type of LED lighting and present an impressive visual appeal that blends perfectly with the traditional champagne gold coloring of the panel.

Functions and Features

The amplifier offers a choice of line inputs and balanced inputs that effectively shut out external noise interference.



Assembly with line and balanced input connectors

The operation mode selector facilitates bi-amping or bridged connection. In bridged mode, the P-7300 turns into a mono-phonetic power amplifier capable of delivering an amazing 1,600 watts into 2 ohms.



Operation mode selector

Low-Noise Instrumentation Amplifier Configuration and Further Refined MCS+ Topology

Low-noise instrumentation amplifier in discrete configuration allows balanced signal paths

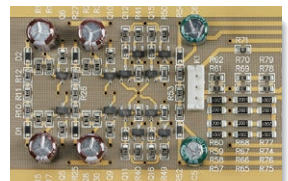
The balanced input stage circuitry features Instrumentation amplifier topology such as used in high-precision measuring equipment. To achieve ultra low noise, the input stage gain is set to a high value, which in turn allows using a high power supply voltage so that distortion at large amplitudes is eliminated. Signal purity is further elevated by the use of ultimate-quality fully discrete components.



Low-noise input assembly

Further refined MCS+ topology for even lower noise

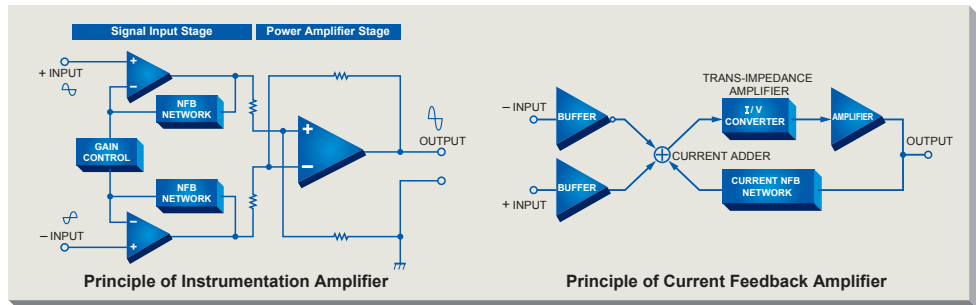
Accuphase's original MCS (Multiple Circuit Summing) principle uses a number of identical circuits connected in parallel to achieve superior performance characteristics. MCS+ is a further refined version of this approach, which extends the parallel operation approach to the class-A drive stage of the current/voltage converter, thereby further lowering the noise floor.



MCS+ circuitry

Current feedback circuit topology assures excellent phase characteristics in high range

In the P-7300, the signal current rather than the more conventionally used voltage is used for feedback, as shown in the illustration below (right). Since the impedance at the current feedback point is very low, there is almost no phase shift. Phase compensation can therefore be kept at a minimum, and a slight amount of NFB results in maximum improvement of circuit parameters. Operation remains perfectly stable throughout, which is especially important for a power amplifier that has to handle signals ranging from minute to highly dynamic levels.



4-stage gain selector (-12 dB, -6 dB, -3 dB, MAX) directly controls the gain of the instrumentation amplifier and therefore further minimizes residual noise at lower settings.



Gain selector

A phase selector on the rear panel provides compatibility with both pin 2 (+) and pin 3 (+) type balanced input sources for maximum flexibility. Normally, the pin 3 (+) setting is used.



Phase selector switch

The P-7300 features a newly developed massive high-power toroidal transformer, enclosed in an aluminum housing with excellent thermal conductivity and superior vibration damping characteristics.



Large high-power toroidal transformer

As in the A-200, two generously dimensioned vibration resistant aluminum electrolytic capacitors of 56,000 µF each are used, to provide ample smoothing capacity. The capacitors have been specially selected for their excellent sonic properties.



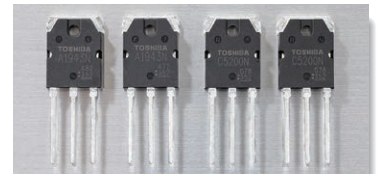
Filtering capacitors with high capacitance

To reliably protect the speakers from any risk of damage in case of an amplifier problem during operation, power MOS-FET devices with an on-resistance as low as 0.002 ohms are used. Because these semiconductor switches do not have any mechanical contact points, there can be no contact failures and excellent long-term reliability is assured.

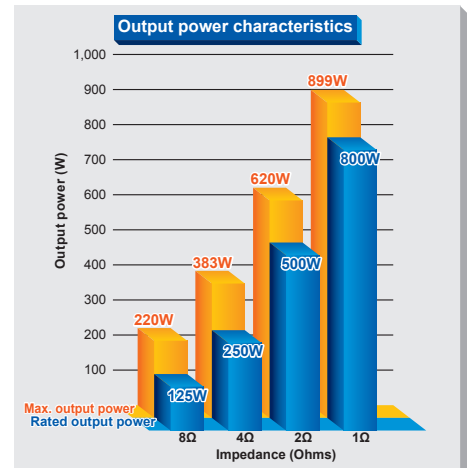


MOS-FET switches

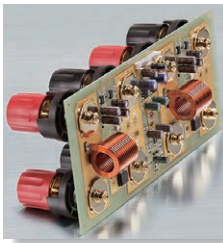
Each channel is served by a power unit with bipolar transistors arranged in a 10-parallel push-pull configuration, producing an impressive linear output progression of 800 watts into 1 ohm (music signals only), 500 watts into 2 ohms, 250 watts into 4 ohms, and 125 watts into 8 ohms.



Bipolar power transistors designed for audio applications



The amplifier is equipped with large speaker terminals capable of handling even extremely heavy-gauge speaker cables. Two sets of terminals are connected in parallel, which is optimal for bi-wiring connections.



Large speaker terminals

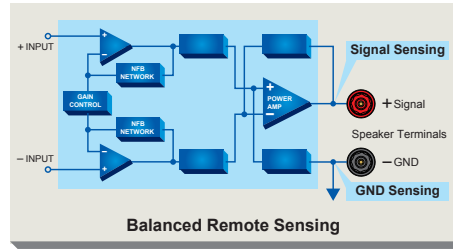
In the output circuitry, so-called edgewise coils which use special copper leads with a square rather than a round profile are used, providing a cross-sectional area more than three times



Ultra thick profile edgewise coil

larger than conventional units. This results in very low DC resistance and contributes to the improved damping factor.

The implementation of balanced remote sensing technology using balanced feedback from a point near the speaker terminals results in lower impedance and higher damping factor.



The two large analog power meters are highly convenient for monitoring output levels. The meters combine peak level detection with a logarithmic scale that allows direct reading of levels over a wide range.



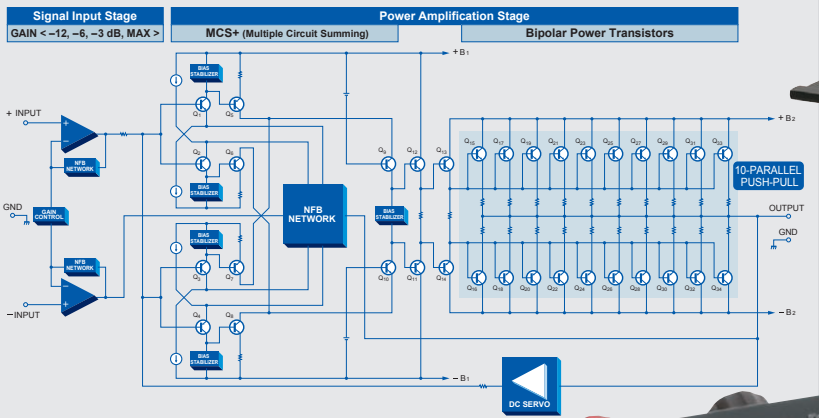
The peak hold time can be switched to three seconds or infinite, and the meter operation and illumination can also be switched on or off.



Meter operation selector

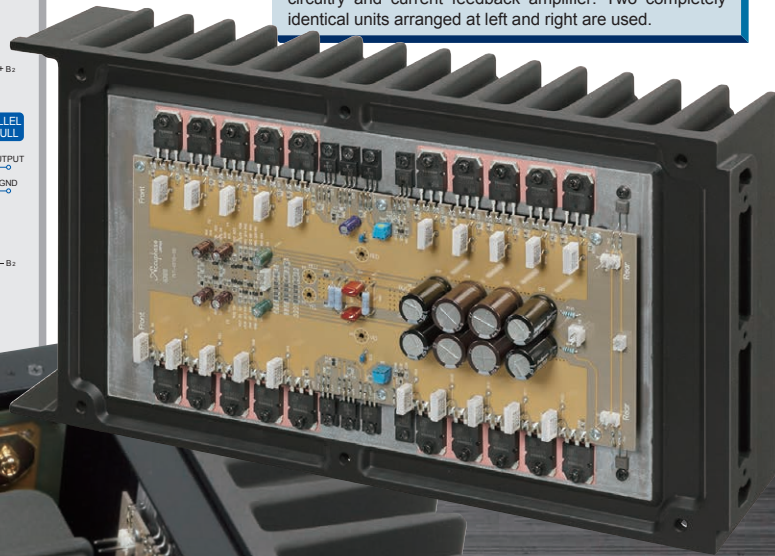
The printed circuit boards for signal transmission are made from glass cloth fluorocarbon resin offering advantages such as low dielectric constant and minimum loss.

Circuit Diagram of Power Amplification Circuitry (One Channel)



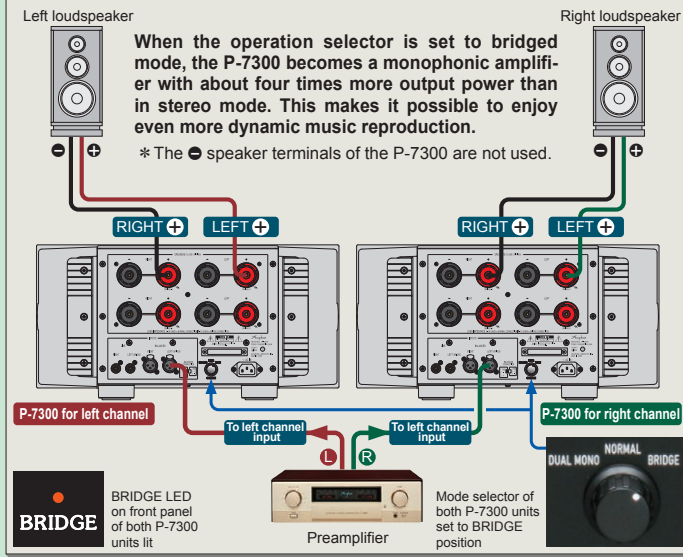
Power Amplifier Assembly

Output stage with 10-parallel push-pull power arrangement of bipolar power transistors mounted directly to large diecast aluminum heat sink, also comprising MCS+ circuitry and current feedback amplifier. Two completely identical units arranged at left and right are used.

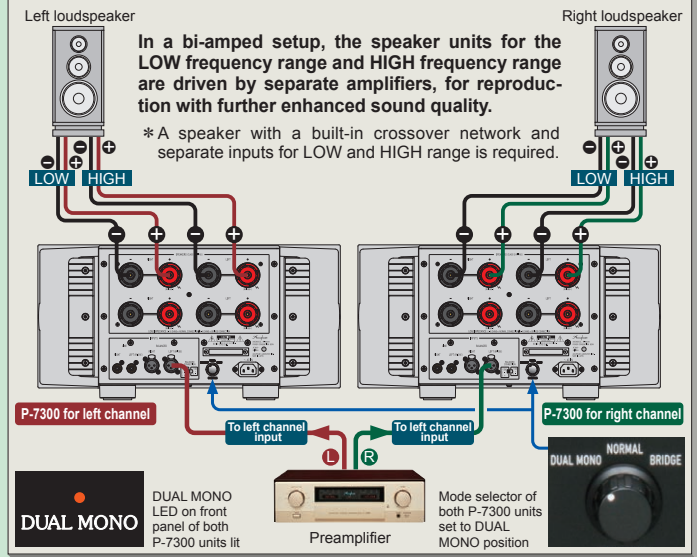


■ Using two P-7300 units, upgrading to bridged operation or bi-amping is possible. ■ In this case, only the LEFT input (BALANCED or LINE) of each unit is used.

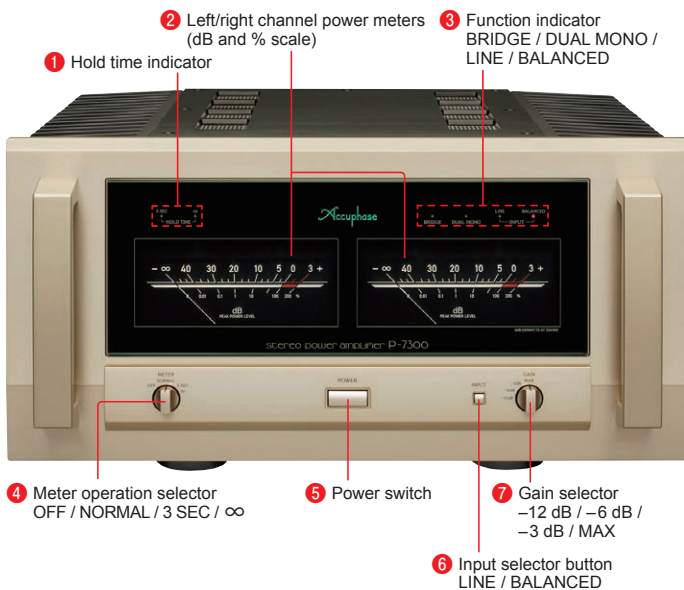
Connection example for bridged setup



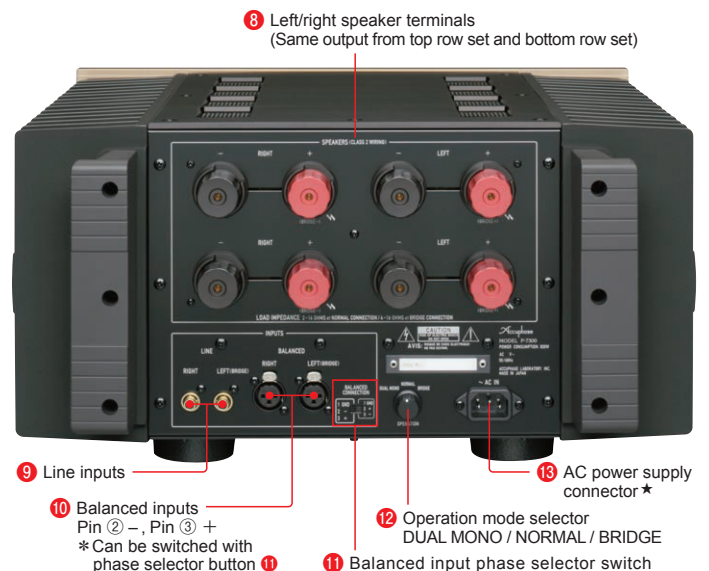
Connection example for bi-amping setup



Front panel



Rear panel



P-7300 Guaranteed Specifications [Guaranteed specifications are measured according to EIA standard RS-490.]

<ul style="list-style-type: none"> ● Continuous Average Output Power (20 - 20,000 Hz) Note: Load ratings marked (*) apply only to operation with music signals. Stereo operation (both channels driven): 800 watts per channel into 1 ohm (*), 500 watts per channel into 2 ohms, 250 watts per channel into 4 ohms, 125 watts per channel into 8 ohms. Monophonic operation (bridged connection): 1,600 watts into 2 ohms (*), 1,000 watts into 4 ohms, 500 watts into 8 ohms. ● Total Harmonic Distortion Stereo operation (both channels driven): 0.05% with a 2 ohm load, 0.03% with a 4 to 16 ohm load. Monophonic operation (bridged connection): 0.05% with a 4 to 16 ohm load. ● Intermodulation Distortion 0.01% ● Frequency Response At rated continuous average output: 20 - 20,000 Hz +0, -0.2 dB At 1 watt output: 0.5 - 160,000 Hz +0, -3.0 dB ● Gain 28.0 dB (GAIN selector in MAX position) (Stereo/monophonic operation) ● Gain Selection -12 dB, -6 dB, -3 dB, MAX ● Output Load impedance Stereo operation: 2 to 16 ohms Monophonic operation: 4 to 16 ohms [* With music signals only, 1-ohm loads are permissible for stereo operation and 2-ohm loads for monophonic operation.] 	<ul style="list-style-type: none"> ● Damping Factor 1,000 ● Input Sensitivity (with 8-ohm load, GAIN selector in MAX position) Stereo operation: 1.26 V for rated continuous average output 0.11 V for 1 watt output Monophonic operation: 2.52 V for rated continuous average output 0.11 V for 1 watt output ● Input Impedance Balanced: 40 kilohms Line: 20 kilohms ● Signal-to-Noise Ratio (A-weighted, input shorted) 125 dB (GAIN selector in MAX position) 131 dB (GAIN selector in -12 dB position) ● Output Level Meters -40 dB to +3.0 dB (indication in dB and %) Logarithmic scale, with illumination off switch and sensitivity Peak hold time switchable 3 s, ∞ ● Power Requirements 120/220/230 V AC, 50/60 Hz (Voltage as indicated on rear panel) ● Power Consumption 117 watts idle 820 watts in accordance with IEC 60065 ● Maximum Dimensions Width 465 mm (18-5/16") Height 238 mm (9-3/8") Depth 515 mm (20-9/32") ● Mass 48.6 kg (107.2 lbs) net 58.0 kg (127.1 lbs) in shipping carton
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Remarks

- ★ This product is available in versions for 120/220/230 V AC. Make sure that the voltage shown on the rear panel matches the AC line voltage in your area.
- ★ The 230 V version has an Eco Mode that switches power off after 120 minutes of inactivity.
- ★ The shape of the AC inlet and plug of the supplied power cord depends on the voltage rating and destination country.

- Supplied accessory
- AC power cord



ACCUPHASE LABORATORY, INC.