

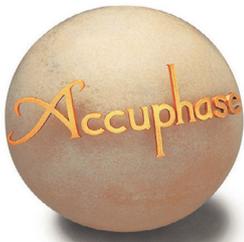
# Accuphase

STEREO POWER AMPLIFIER

## P-4200

- Output stage with triple parallel push-pull configuration for each channel delivers high power down to very low impedance loads
- Instrumentation amplifier principle used in input stage
- MCS+ circuit and current feedback topology in amplification stage
- Bridged connection mode allows upgrading to monophonic amplifier
- Strong power supply with massive high-efficiency toroidal transformer and large filtering capacitors
- 4-stage gain control





**Stereo power amplifier with impeccable performance — Instrumentation amplifier principle in amplification stage allows fully balanced signal paths. Further refined MCS+ and current feedback topology assure excellent sound, with outstanding S/N ratio and excellent performance in all other aspects. A hefty power supply and power transistors arranged in a triple parallel push-pull configuration deliver 500 watts/ch (music signals) into an ultra-low 1-ohm load. Output stage with further lowered impedance results in a damping factor of 500.**

Ever since its founding in 1972, Accuphase has designed its power amplifiers for optimal speaker drive, capturing the high-end market with a succession of highly regarded models that became legend. The commemorative model A-200 released on the occasion of the company's 40th anniversary demonstrated Accuphase's mastery of power amplifier technology. It stands at the pinnacle of its field and has been widely lauded as a history-making achievement both in terms of performance and sonic excellence. The Stereo Power Amplifier P-4200 incorporates the outstanding design technology of the A-200. Based on the P-4100, it represents a full model change with further enhanced overall circuitry. Latest instrumentation amplifier topology is implemented in the entire configuration of the P-4200, allowing not only fully balanced signal paths from the inputs onwards, but also the realization of a gain control that effectively minimizes residual noise. The power amplifier section features another Accuphase specialty, namely the MCS+ topology in combination with current feedback, ensuring outstanding S/N ratio and superior electrical performance characteristics. The output stage for each channel uses three pairs of high-power transistors with a Pc rating of 220 watts, arranged in a parallel push-pull configuration. This ensures low output impedance. Stable operation is achieved by mounting the devices to massive heat sinks on both sides of the chassis, for efficient dissipation of thermal energy. As demonstrated by the power rating of 500 watts per channel into 1 ohm (music signals only), the P-4200 can easily drive speakers with very low impedance, and speakers with uneven impedance curves are also handled with aplomb. Using the P-4200 in bridged mode creates a monophonic amplifier with even more impressive power output capability. This kind of performance is sustained by a power supply section with a large toroidal transformer whose efficiency has been further increased compared to the P-4100, and two large 47,000  $\mu\text{F}$  filtering capacitors selected for ultimate sound quality and reflecting know-how gained with the A-200. The output circuitry also benefits from the latest technology advances. Output relays have been replaced by MOS-FET switches that combine excellent reliability with highly pure amplification. Redesigned output coils and other features result in lower energy losses and allow a drastic improvement of the damping factor to 500. This rating not only points towards an extremely wide power bandwidth, it also means that the degree of coupling between loudspeakers and amplifier has been tightened even further, resulting in music playback of impressive fidelity.

- **Power modules with high-power transistors in triple parallel push-pull arrangement deliver linear power of 500 watts per channel into 1 ohm (music signals only), 360 watts into 2 ohms, 180 watts into 4 ohms, or 90 watts into 8 ohms.**
- **Large, high-efficiency toroidal transformer and two 47,000  $\mu\text{F}$  aluminum electrolytic capacitors selected for best sonic performance.**
- **Output stage with further lowered impedance realizes damping factor of 500.**
- **Bridging allows upgrade to monophonic amplifier with even higher power, delivering 1,000 watts into 2 ohms (music signals only), 720 watts into 4 ohms, or 360 watts into 8 ohms.**
- **Input selector button on front panel allows switching between Line and Balanced signals.**
- **4-stage gain selector (MAX, -3 dB, -6 dB, -12 dB) also minimizes residual noise.**
- **Large analog power meters with on/off switch and peak hold function (3 seconds/infinite).**
- **Semiconductor (MOS-FET) switches used for protection circuitry prevent contact problems and ensure long-term reliability. Eliminating mechanical contacts from signal path also further enhances sound quality.**
- **Two sets of oversize speaker terminals also accept Y lugs.**



High-power transistors used in output stage



Toroidal power transformer



Filtering capacitors



Input selector button

Gain selector

Meter selector



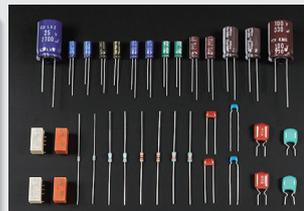
MOS-FET switches



Assembly with meter and protection circuitry etc.



Large speaker terminals



Parts selected for high sound quality and reliability



Assembly with line and balanced input connectors

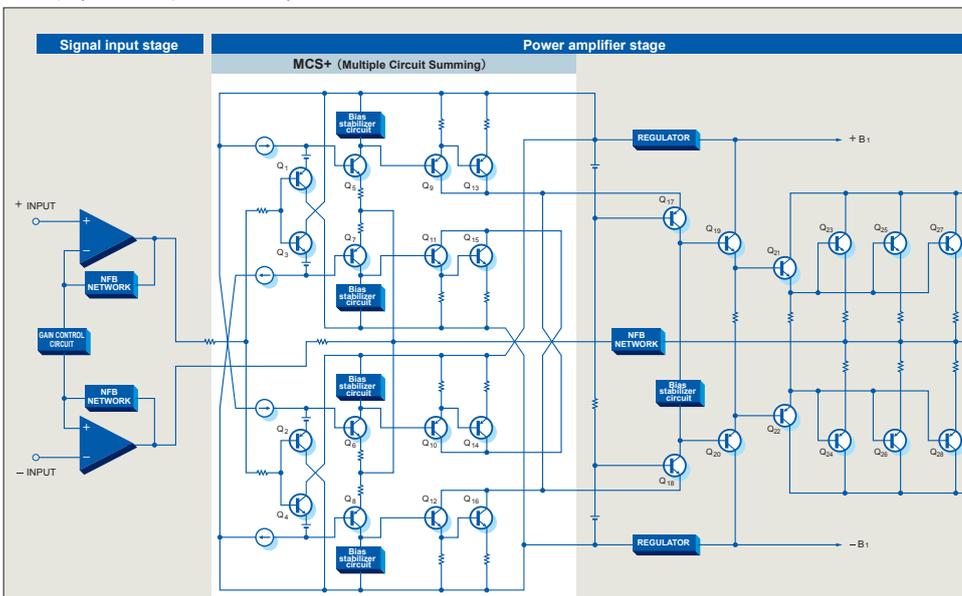


Figure 1 Circuit diagram of amplifier section (one channel)

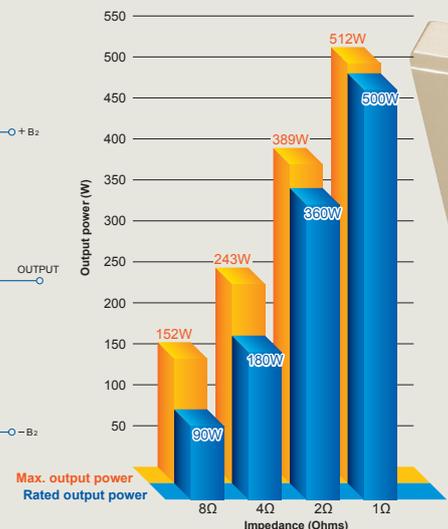
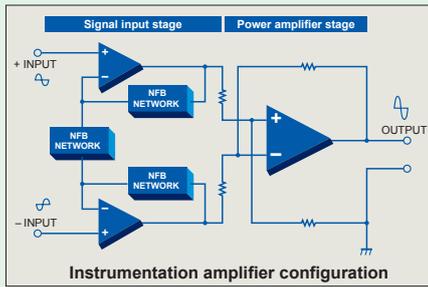


Figure 2 Output power characteristics

# Instrumentation amplifier configuration and further refined MCS+ topology

## Instrumentation amplifier configuration allows fully balanced signal paths

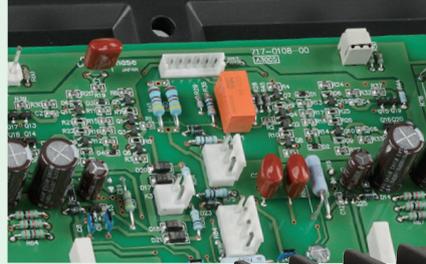
The newly adopted "instrumentation amplifier" principle ensures that all signal paths from the inputs to the power amp stage are fully balanced.



This results in excellent CMRR (common mode rejection ratio) and minimal distortion. Another significant advantage is that external noise and other external influences are virtually shut out. The result is a drastic improvement in operation stability and reliability.

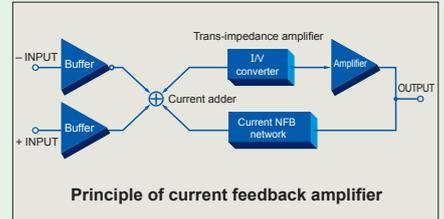
## Further refined MCS+ topology for even lower noise

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. By extending parallel operation to the class-A drive stage of the current/voltage converter, the noise floor has been lowered further.



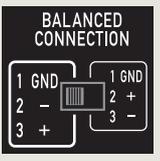
## Current feedback principle assures excellent phase characteristics in high range

As shown in the illustration, the P-4200 uses the output signal current rather than voltage for feedback. Since the impedance at the current feedback point is very low, there is almost no phase shift. A minimal amount of NFB therefore results in maximum improvement of circuit parameters.



## Balanced input phase selector switch

- If the balanced input of the preamplifier uses the "pin 2 positive" configuration, this switch can be used for proper matching.

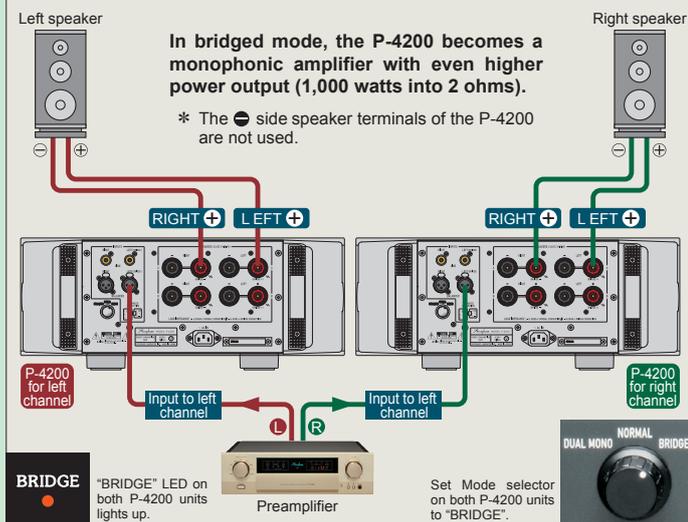


- Power amplifier assembly with three parallel push-pull high-power transistor pairs per channel mounted directly to large heat sink, MCS+ circuitry, and current feedback amplifier.

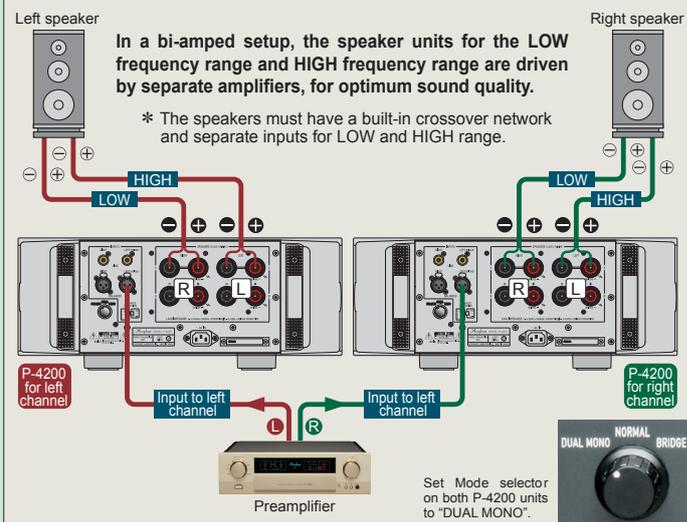


■ You can use two P-4200 units in bridged mode or in a bi-amping setup, for even higher quality. ■ Use the LEFT (BALANCED or LINE) input connectors for both units.

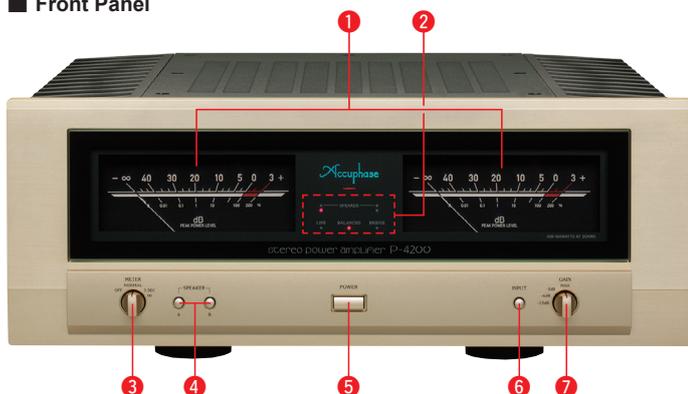
### Bridged connection example



### Bi-amping connection example



### Front Panel



### Rear Panel



- 1 Right/left-channel output power meters (dB and % scale)
- 2 Function indicators  
SPEAKER A, B / LINE / BALANCED / BRIDGE
- 3 Meter switch  
OFF / NORMAL / 3 SEC / ∞
- 4 Speaker selector buttons  
A: ON/OFF / B: ON/OFF
- 5 Power switch
- 6 Input selector button  
LINE / BALANCED
- 7 Gain selector  
MAX / -3dB / -6dB / -12dB
- 8 Line inputs
- 9 Balanced inputs  
Pin ②: Inverted (-) Pin ③: Non-inverted (+)  
(Can be changed with phase selector switch ⑪.)
- 10 Mode selector  
DUAL MONO / NORMAL / BRIDGE
- 11 Balanced input phase selector switch
- 12 Right/left-channel speaker output terminals  
A and B (two pairs)
- 13 AC power supply connector\*

### 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.
- ★ 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

### P-4200 Guaranteed Specifications

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

#### ● Continuous Average Output Power (20 - 20,000 Hz)

Note: Load ratings marked (\*) apply only to operation with music signals.

Stereo operation (both channels driven)

- 500 watts per channel into 1 ohm (\*)
- 360 watts per channel into 2 ohms
- 180 watts per channel into 4 ohms
- 90 watts per channel into 8 ohms

Monophonic operation (bridged connection)

- 1,000 watts into 2 ohms (\*)
- 720 watts into 4 ohms
- 360 watts into 8 ohms

#### ● Total Harmonic Distortion

Stereo operation (both channels driven)

- 0.05% with 2 ohm load
- 0.02% with 4 to 16 ohm load

Monophonic operation (bridged connection)

- 0.05% with 4 to 16 ohm load

#### ● Intermodulation Distortion

0.01%

#### ● Frequency Response

At rated 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 (with GAIN selector at MAX)  
(in stereo and monophonic operation)

#### ● Gain Selection

MAX, -3dB, -6dB, -12dB

#### ● 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.]

#### ● Damping Factor

500 (stereo operation)

#### ● Input Sensitivity (with 8-ohm load, GAIN selector in MAX position)

Stereo operation:

1.07 V for rated output

0.11 V for 1 watt output

Monophonic operation:

2.14 V for rated output

0.11 V for 1 watt output

#### ● Input Impedance

Line: 20 kilohms, Balanced: 40 kilohms

#### ● Signal-to-Noise Ratio (A-weighted, input shorted)

120 dB (GAIN selector at MAX)

125 dB (GAIN selector at -12 dB)

At rated output

#### ● Output Level Meters

-∞ dB to +3 dB (indication in dB and %)

Logarithmic scale, with defeat switch, hold time switchable 3 s / ∞

#### ● Power Requirements

AC 120 V/220 V/230 V, 50/60 Hz (Voltage as indicated on rear panel)

#### ● Power Consumption

76 watts idle

560 watts in accordance with IEC 60065

#### ● Maximum Dimensions

Width 465 mm (18-5/16")

Height 190 mm (7-1/2")

Depth 427 mm (16-13/16")

#### ● Mass

28.9 kg (63.7 lbs) net

35.0 kg (77.2 lbs) in shipping carton