

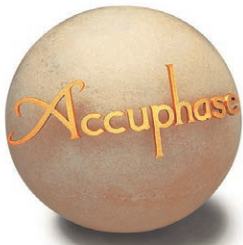
# Accuphase

STEREO POWER AMPLIFIER

## P-4500

- Power amplification stage with 4-parallel complementary push-pull configuration
- Linear output characteristics (90 W / 8 ohms, 180 W / 4 ohms, 360 W / 2 ohms)
- 500 W output into ultra-low impedance load of 1 ohm (music signals)
- Instrumentation amplifier principle
- Current feedback topology
- Balanced Remote Sensing
- High damping factor of 700
- Speaker output protection with short-circuit detection
- Highly responsive large peak power meters
- Support for bi-amping and bridged mode





# Stereo power amplifier with outstanding performance

The quest for the optimal power amplifier has just taken another giant leap forward. The P-4500 features an instrumentation amplifier configuration realized with discrete semiconductors in the signal path, triple Darlington 4-parallel complementary push-pull architecture and many other technology advantages. The result is an impressive S/N ratio of 121 dB, rated output of 500 watts into 1 ohm (music signals), and a damping factor of 700. A newly developed output protection circuit can also detect any short-circuiting of the speaker terminals, for complete peace of mind. This power amplifier is the ultimate tool for immersive music enjoyment on the highest level.

*Technology development ahead of the curve*

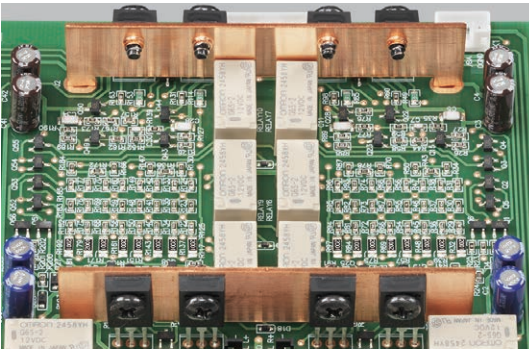
## Instrumentation amplifier principle realizes excellent S/N ratio and linear output characteristics

### Instrumentation amplifier topology further improves noise performance

The P-4500 employs an instrumentation amplifier configuration that is highly effective in keeping external noise from affecting the signal transmission lines. The configuration comprises a signal input unit that receives the signal from the preamplifier and a power amplification unit that sends power to the speakers. The input stage is designed for high gain (22 dB) and the power amplification stage for low gain (6 dB). Consequently, the internal signal has a large amplitude which makes it much less prone to interference, thereby further improving the noise performance.

### Signal input section with high gain

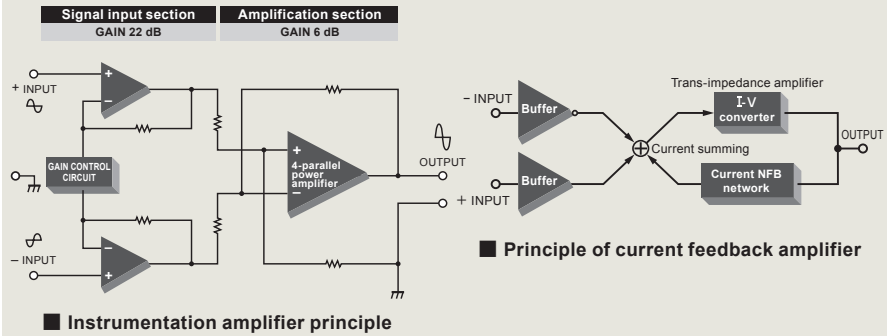
As in the A-75, the signal input stage is entirely configured with low-noise discrete circuit components which can handle high power supply voltages. This makes it possible to design the circuit for a high gain of 22 dB, something that cannot be achieved with OP amp ICs that have power supply voltage constraints. As a result, the S/N ratio of the P-4500 is an astonishing 121 dB.



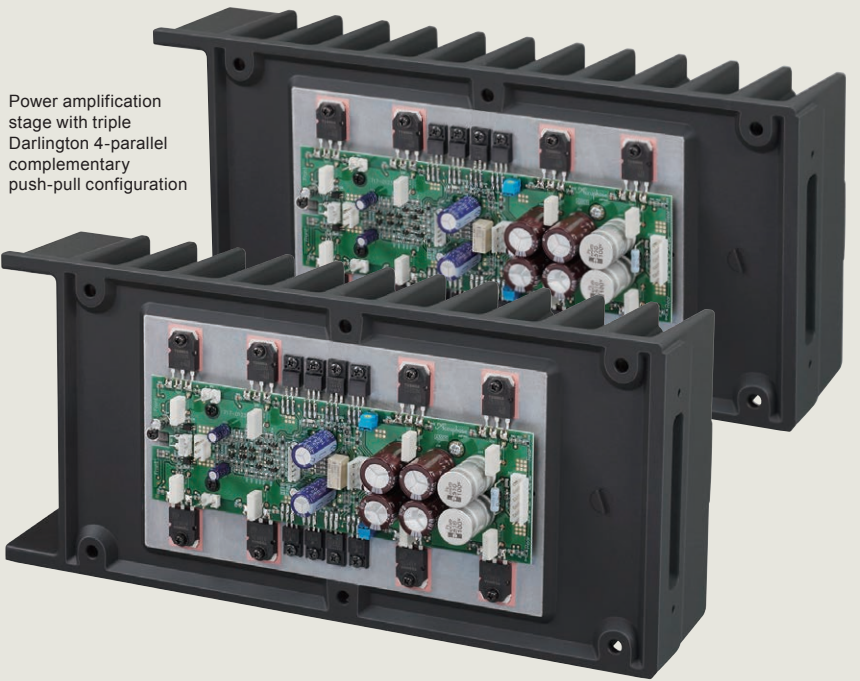
Signal input section

### Power amplification section with linear output characteristics

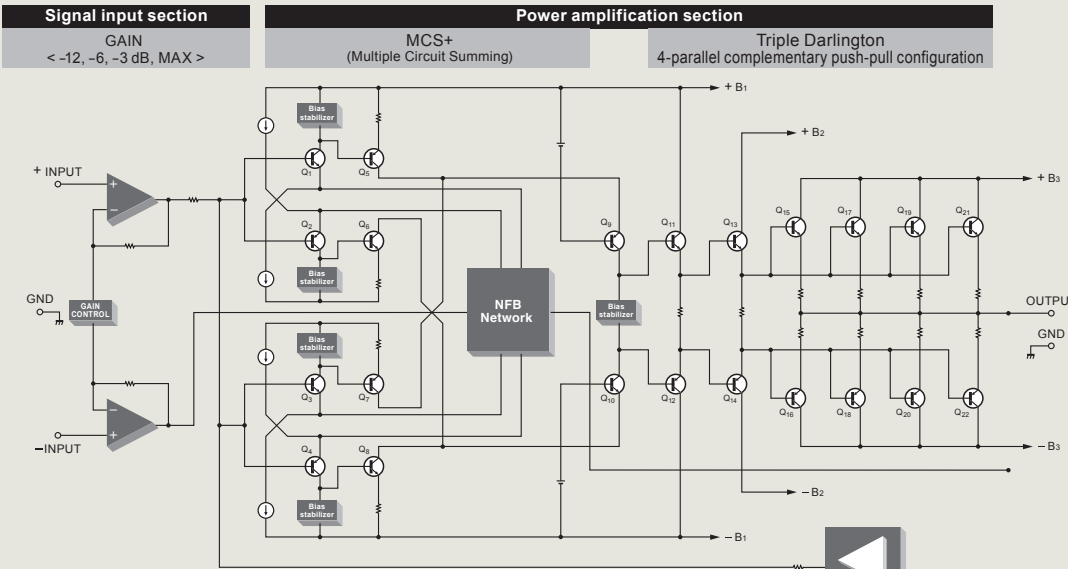
The power amplification stage of the P-4500 features bipolar power transistors mounted directly to large heat sinks for highly efficient thermal dissipation. The devices are configured as a triple Darlington 4-parallel complementary push-pull circuit that is capable of doubling the rated output when the impedance is halved. In other words, it achieves a fully linear power progression of 90 watts into 8 ohms, 180 watts into 4 ohms, and 360 watts into 2 ohms. It can even supply loads as low as 1 ohm with 500 watts of power (music signals). The impressive damping factor of 700 means that the amplifier has ample leeway to drive any kind of loudspeaker.



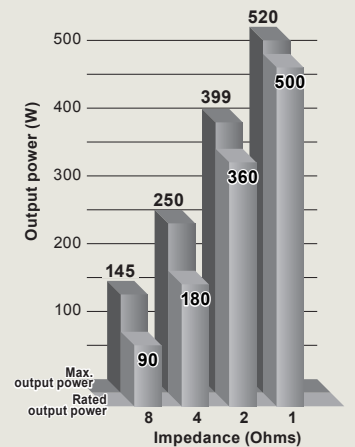
Instrumentation amplifier principle



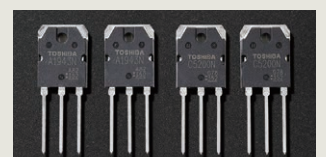
Power amplification stage with triple Darlington 4-parallel complementary push-pull configuration



Circuit diagram of amplifier section (one channel)



Output power characteristics



Bipolar power transistors

## Functionality – Convenience that makes sense



- ① Speaker output selector for two pairs of speakers
- ② Meter display characteristics selector

- ③ Input selector button
- ④ Amplification gain selector

## Advanced Features

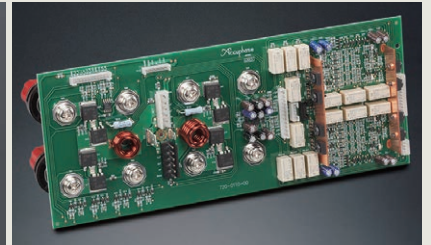
- 4-parallel complementary push-pull configuration using bipolar power transistors
- Linear output characteristics (90 W / 8 ohms, 180 W / 4 ohms, 360 W / 2 ohms)
- 500 W output into ultra-low impedance load of 1 ohm (music signals)
- Strong power supply with massive toroidal transformer and large 50,000  $\mu$ F filtering capacitors
- Instrumentation amplifier principle
- High-gain signal input section for outstanding S/N ratio
- Dedicated power supply for signal input section ensures stable operation
- Line and balanced input connectors
- Polarity switching for balanced input connectors
- MCS+ circuit topology further reduces noise
- Current feedback principle in amplification circuitry
- Protection circuitry using MOS-FET switches
- High damping factor of 700
- Balanced Remote Sensing
- Speaker output protection with over-current detection
- Highly responsive large peak power meters
- Two sets of large speaker terminals
- 4-step gain control
- Support for bi-amping and bridged mode



Large high-efficiency toroidal power transformer



50,000  $\mu$ F filtering capacitors



Input signal and protection circuit board



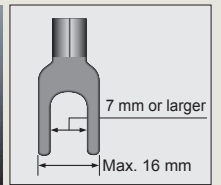
MOS-FET switches



Dedicated power supply for signal input section



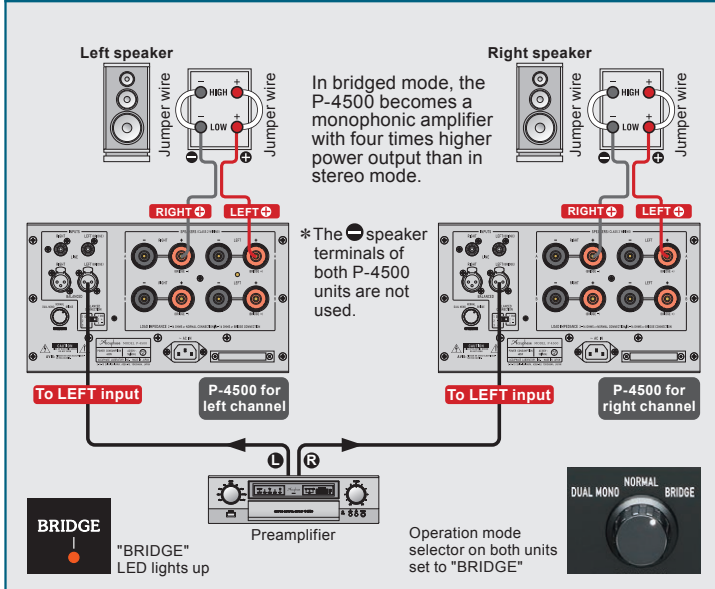
Large speaker terminals



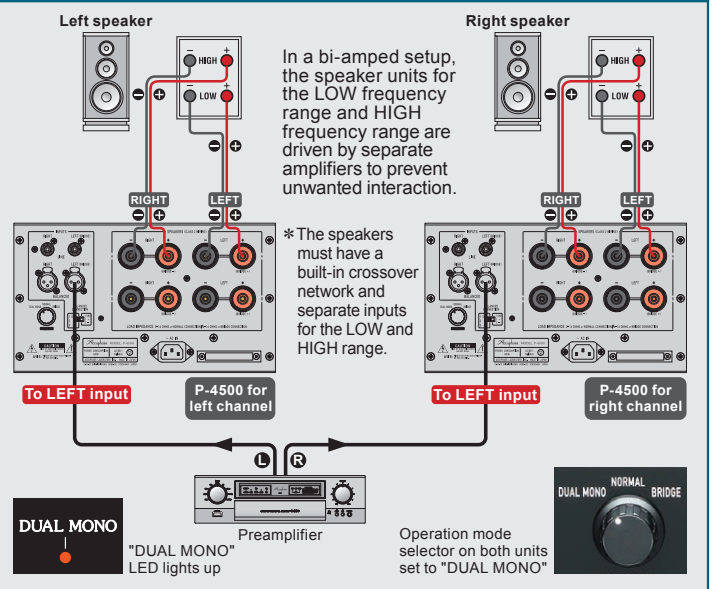
Supported spade lug dimensions



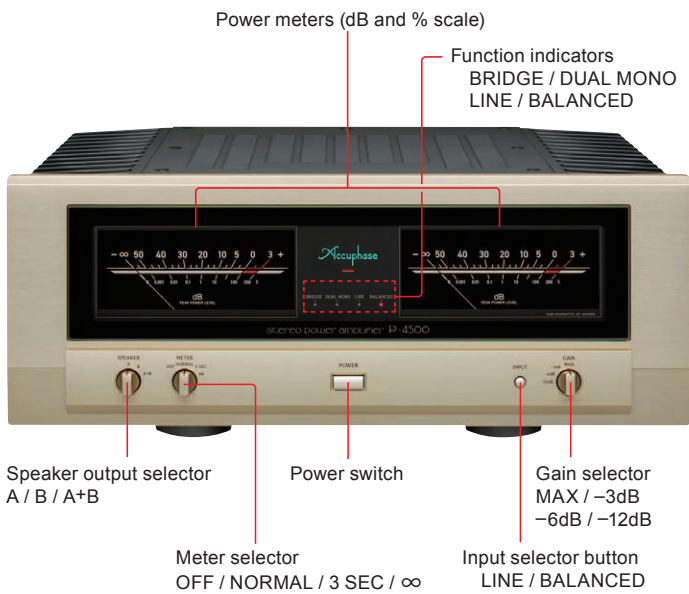
## Bridged connection example



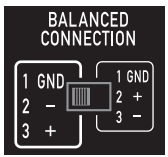
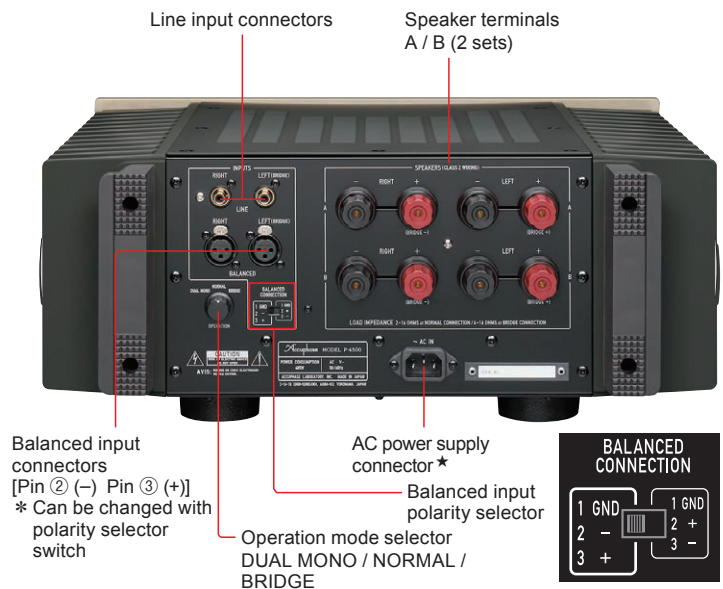
## Bi-amping connection example



## Front Panel



## Rear Panel



## P-4500 Guaranteed Specifications [Guaranteed specifications are measured according to EIA standard RS-490.]

<b>Continuous Average Output Power (20 - 20,000 Hz)</b>	Note: Ratings marked (*) are for music signals only.				
<b>Stereo operation</b> (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	
<b>Monophonic operation</b> (bridged connection)	1000 watts into 2 ohms (*)	720 watts into 4 ohms	360 watts into 8 ohms		
<b>Total Harmonic Distortion</b> (both channels driven)	0.05% with a 2-ohm load	0.02% with a 4 to 16-ohm load	Monophonic operation (bridged connection) 0.05% with a 4 to 16-ohm load		
<b>Intermodulation Distortion</b>	0.01%				
<b>Frequency Response</b>	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				
<b>Gain</b>	28.0 dB (GAIN selector in MAX position) (Stereo / monophonic operation)				
<b>Gain Selector</b>	Selector position	MAX	-3 dB	-6 dB	-12 dB
	Gain (dB)	28	25	22	16
<b>Output Load Impedance</b>	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 bridged operation.				

<b>Damping Factor</b>	700
<b>Input Sensitivity (with 8-ohm load)</b>	Stereo operation 1.07 V for rated continuous average output 0.11 V for 1 watt output Monophonic operation 2.14 V for rated continuous average output 0.11 V for 1 watt output
<b>Input Impedance</b>	Balanced: 40 kilohms, Line (unbalanced): 20 kilohms
<b>S/N Ratio (A-weighted, with input shorted)</b>	121 dB Gain selector at MAX position 126 dB Gain selector at -12 dB position At rated continuous average output
<b>Power Meters</b>	Logarithmic scale, with indication off switch -∞ to +3 dB (indication in dB and %) Hold time switchable 3 s / ∞ * During monophonic operation, both meters show the same value.
<b>Power Requirements</b>	120 V/220 V/230 V AC, 50/60 Hz (Voltage as indicated on rear panel)
<b>Power Consumption</b>	62 watts idle 485 watts in accordance with IEC 60065
<b>Maximum Dimensions</b>	Width 465 mm (18.31") Height 190 mm (7.48") Depth 427 mm (16.81")
<b>Mass</b>	29.2 kg (64.4 lbs) net 35.0 kg (77.2 lbs) in shipping carton

### 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 plug of the supplied AC power cord depends on the voltage rating and destination country.

### Supplied accessory

- AC power cord



ACCUPHASE LABORATORY, INC.

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