Accuphase

CLASS-A STEREO POWER AMPLIFIER

A-65

● Pure Class A operation delivers quality power: 60 watts × 2 into 8 ohms ● Power MOS-FET output stage features 10-parallel push-pull configuration and delivers linear high power progression to ultra-low 1-ohm impedances ● Input section configured as instrumentation amplifier ● Further improved MCS+ circuit in amplifier section ● Current feedback topology combines stable operation with outstanding sound ● Bridged mode allows upgrading to monophonic amplifier ● Two selectable meter types: digital power meters showing true power values and bar graph indicators

Pure Class A power amplifier with power MOS-FET devices — Input stage features fully balanced signal paths as found in high-quality instrumentation amplifiers. Further refined MCS+ topology and current feedback result in superb sound quality and outstanding performance parameters. Strong power supply section and power MOS-FET devices in ten-parallel push-pull configuration sustain linear power output progression down to impedances as low as 1 ohm. Digital power meters show true power readings.

The combination of pure class A and power MOS-FET devices to realize high output power with excellent sonic purity is a domain where Accuphase excels. Models such as the A-100, A-50V, and A-60 have achieved legendary status among audiophiles and represent an unrivaled level of technological excellence. As a model-change successor to the A-60, the new A-65 incorporates accumulated Accuphase know-how while featuring a number of further improvements. The input stage is configured as an instrumentation amplifier to allow fully balanced input signal paths. The further refined MCS+ topology pushes noise and distortion down to absolutely minimal levels, and strictly selected materials and parts of the highest quality are used throughout. The end result is a high-end class A stereo amplifier with simply stunning performance and sound quality.

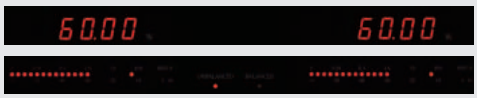
The output stage of the A-65 features power MOS-FETs renowned for their excellent sound and superior reliability. For each channel, ten of these devices are arranged in a parallel push-pull arrangement. MOS-FETs have excellent frequency characteristics, and their high input impedance reduces the load imposed on the preceding drive stage. They also have negative thermal characteristics, which ensures perfect operation stability. Driving these devices in pure class A produces rich, high-definition sound that brings out the finest nuances in the music. In a pure class A amplifier, the power provided by the power supply is always constant, regardless of the presence of a musical signal. This means that the amplifier remains unaffected by fluctuations in voltage and other external influences.

On the other hand, it also means that the output stage generates considerable thermal energy. In the A-65, this is dissipated effectively by large heat sinks which provide ample capacity to remove the heat produced by the internal circuitry. The high-efficiency toroidal power transformer housed in an aluminum diecast enclosure, in conjunction with amply dimensioned smoothing capacitors, provides the muscle to deliver an astonishing 480 watts per channel into a 1-ohm load (music signals only). If even higher power reserves are required, bridged mode turns the A-65 into a superlative monophonic power amplifier.

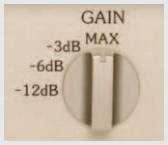
- **Power modules with 10-parallel push-pull arrangement of power MOS-FETs deliver 480 watts per channel into 1 ohm (music signals), 240 watts into 2 ohms, 120 watts into 4 ohms, or 60 watts into 8 ohms.**
- **Strong power supply with high-efficiency toroidal transformer and two extra-large 82,000 µF filtering capacitors.**
- **Bridged mode supports upgrading to monophonic amplifier with 960 watts into 2 ohms (music signals), 480 watts into 4 ohms, or 240 watts into 8 ohms.**
- **Instrumentation amplifier principle allows fully balanced signal paths, and current feedback amplifier topology drastically improves S/N ratio.**
- **Four gain control settings (MAX, –3 dB, –6 dB, –12 dB) minimize residual noise.**
- **Fully balanced input stage shuts out external noise interference.**
- **Dual mode power meters, switchable to 5-digit numeric readout or 25-point LED bar graph indication.**
  - Meter circuit ON/OFF switch.
  - Digital power meters show true output power values, based on output current detected by a Hall element.
  - Peak value hold time settings: 1 second, ∞.
- **Input selector button (balanced/unbalanced) on front panel.**
- **Mode selector with dual mono position supports bi-amping.**
- **Oversize speaker terminals accept also Y lugs.**


Toroidal power transformer


Filtering capacitors

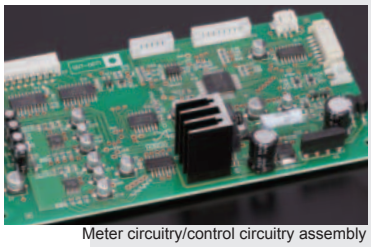


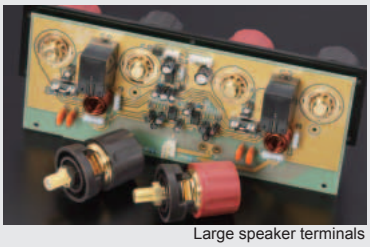

Hall element

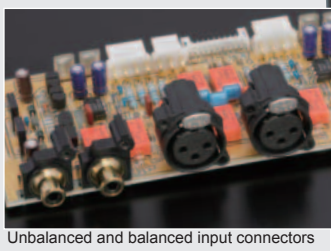


Gain selector

Mode selector


Meter circuitry/control circuitry assembly


Large speaker terminals


Unbalanced and balanced input connectors

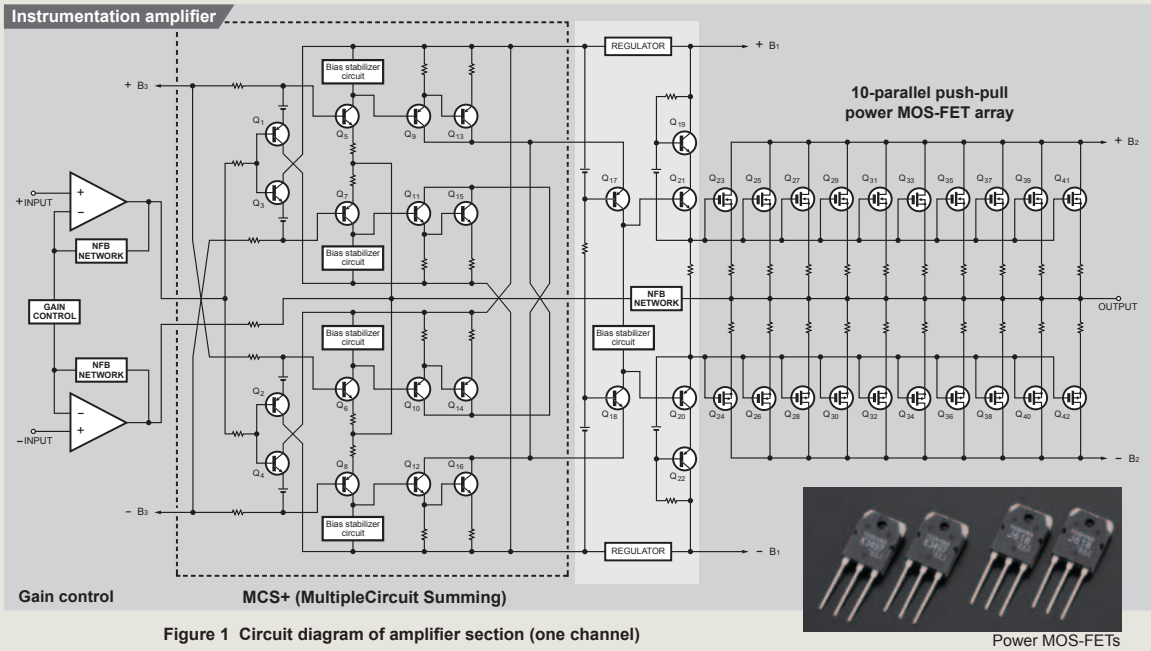
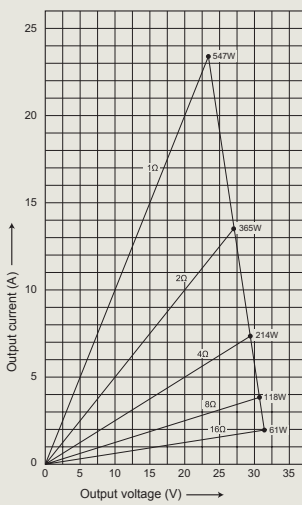


Figure 1 Circuit diagram of amplifier section (one channel)

Power MOS-FETs



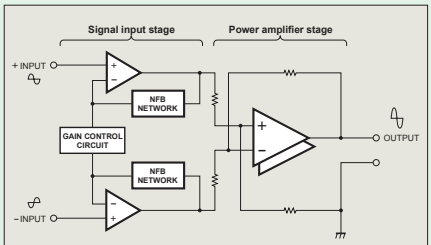
* 1-ohm operation p
with music signal

Figure 2 Load impedance vs. output
(output voltage/output curr

Instrumentation amplifier and further refined MCS+ topology

Instrumentation amp 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.

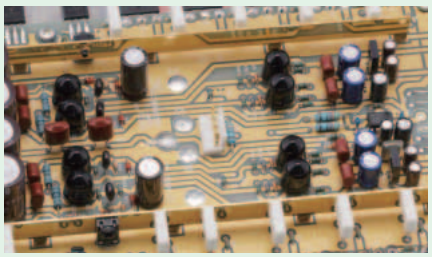


Instrumentation amplifier configuration

This results in excellent CMRR (Common Mode Rejection Ratio) and minimal distortion. Another significant advantage is the fact that external noise and other external influences are virtually shut out. The result is a drastic improvement in operation stability and reliability.

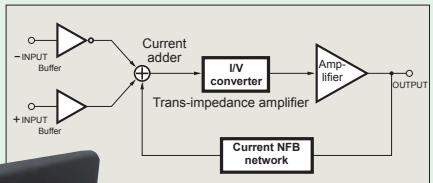
Further refined MCS+ topology for even lower noise

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 A-65 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.

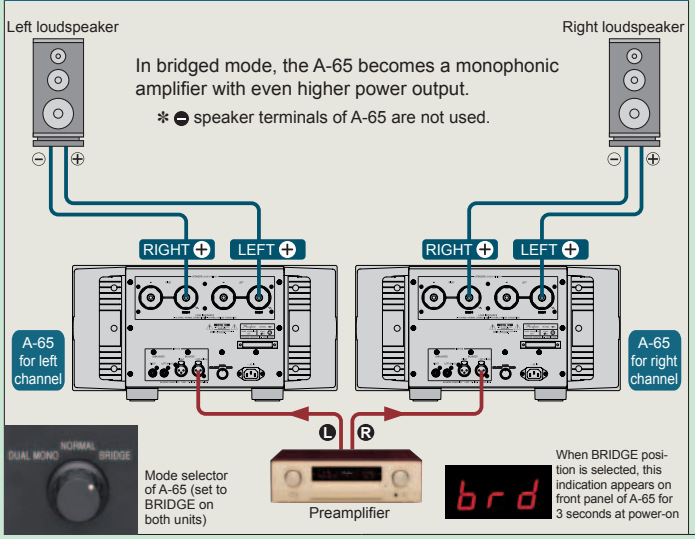


Principle of current feedback amplifier

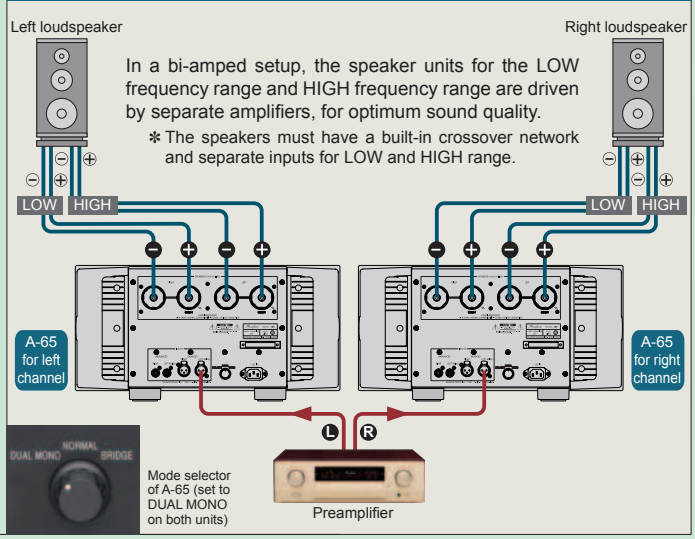
■ **Power amplifier assembly**
Power amplifier assembly with 10-parallel push-pull power MOS-FET pairs per channel mounted directly to large heat sink, MCS+ circuitry, and current feedback amplifier.

■ Using two A-65 units, bridged connection or bi-amping is possible. ■ Input signal to be connected to LEFT connector (BALANCED or UNBALANCED) on both units.

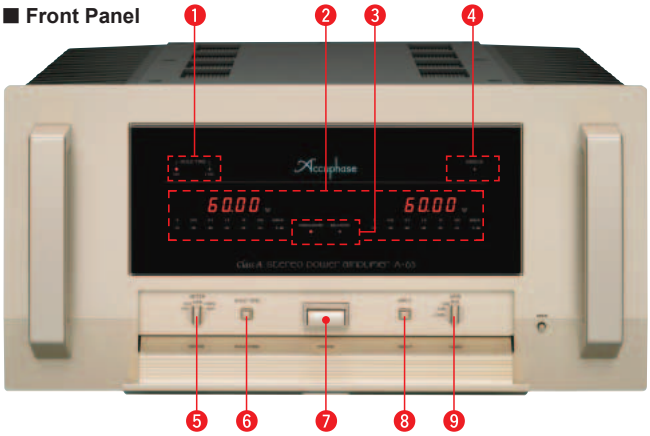
Connection example for bridged setup



Connection example for bi-amping setup



■ Front Panel



■ Rear Panel

1. Hold time indicator
2. Right/left-channel output power meters (digital and bar graph, switchable)
3. Input type indicators
4. Bridge mode indicator
5. Meter selector (Meter OFF, range, bar graph)
6. Hold time selector button 1 SEC, ∞
7. Power switch
8. Input selector button UNBALANCED, BALANCED
9. Gain selector MAX, –3 dB, –6 dB, –12 dB
10. Right/left-channel speaker output terminals
11. Unbalanced inputs
12. Balanced inputs
    ① Ground ② Inverted (–) ③ Non-inverted (+)
13. Mode selector DUAL MONO, NORMAL, BRIDGE
14. AC power supply connector★

GUARANTEED SPECIFICATIONS

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

- **Continuous Average Output Power (20–20,000 Hz)**
  - Stereo operation (both channels driven): 480 watts per channel into 1 ohm (✻); 240 watts per channel into 2 ohms; 120 watts per channel into 4 ohms; 60 watts per channel into 8 ohms
  - Monophonic operation (bridged connection): 960 watts into 2 ohms (✻); 480 watts into 4 ohms; 240 watts into 8 ohms

  Note: Load ratings marked (✻) apply only to operation with music signals.
- **Total Harmonic Distortion**: Stereo operation (both channels driven) 0.07% with 2 ohm load; 0.05% with 4 to 16 ohm load. Monophonic operation (bridged connection) 0.03%, 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) (Stereo and monophonic operation)
- **Gain Selection**: MAX, –3 dB, –6 dB, –12 dB
- **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**: 400
- **Input Sensitivity (with 8-ohm load, GAIN selector in MAX position)**
  - Stereo operation: 0.87 V for rated continuous average output (60 W); 0.11 V for 1 watt output
  - Monophonic operation: 1.74 V for rated continuous average output (240 W); 0.11 V for 1 watt output
- **Input Impedance**: Balanced: 40 kilohms Unbalanced: 20 kilohms
- **Signal-to-Noise Ratio (A-weighted, input shorted)**: 115 dB (GAIN selector at MAX); 121 dB (GAIN selector at –12 dB); At rated continuous average output
- **Output Level Meters (digital indication and bar graph)**
  - Digital meters: 5-digit indication, selectable range: 10W/100W/1000W
  - Bar graph meters: 25-point scale
  - Hold time: 1 second/∞, switchable
  - ✻ Display off setting provided
  - ✻ Monophonic operation: same value for left/right
- **Power Requirements**: AC 120 V/230 V, 50/60 Hz (Voltage as indicated on rear panel)
- **Power Consumption**: 280 watts idle; 530 watts accordance with IEC 60065
- **Maximum Dimensions**: Width 465 mm (18-5/16"); Height 238 mm (9-3/8"); Depth 515 mm (20-1/4")
- **Mass**: 43.0 kg (94.8 lbs) net; 52.0 kg (114.6 lbs) in shipping carton

Remarks

★ *This product is available in versions for 120/230 V AC. Make sure that the voltage shown on the rear panel matches the AC line voltage in your area.*

★ *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**

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ACCUPHASE LABORATORY, INC.