Accuphase

INTEGRATED STEREO AMPLIFIER

E-260

● Revolutionary AAVA volume control ● Output stage with high-power transistors in parallel push-pull arrangement delivers high quality power: 90 watts x 2 into 8 ohms ● Instrumentation amplifier principle for power amplifier input stage allows fully balanced signal transmission ● Logic-control relays for shortest signal paths ● Strong power supply with massive high-efficiency transformer and large filtering capacitors ● EXT PRE button allows separate use of preamplifier and power amplifier sections ● Numeric indication of volume level

Integrated amplifier with AAVA volume control – Power amplifier section featuring high-power transistors in parallel push-pull configuration, together with robust power supply, realizes low impedance in output stage. Rated for 90 watts of quality power into 8 ohms, with damping factor of 200. Current feedback amplifier topology assures excellent phase characteristics in high range, and instrumentation amplifier principle enables fully balanced signal transmission.

The Accuphase E-200 series of integrated amplifiers occupies a central position in the Accuphase lineup, and enjoys enduring popularity both in Japan and abroad. The E-260 stands firmly in this tradition, harnessing the technology advantages of the series in a new format. It represents a major overhaul of the E-250, reflecting latest design technology and featuring the same advanced AAVA volume control as the higher-ranked models E-560, E-460, and E-360. The result is a classy integrated amplifier that brings out the full musical splendor of every source. AAVA is a revolutionary principle that redefines the concept of volume control from the ground up, operating purely in the analog domain for high performance and ultimate sound. Starting with the ultimate, top-of-the-line preamplifier C-3800, it has received high praise as a crucial ingredient for sonic excellence in preamplifiers and integrated amplifiers.

The preamplifier and power amplifier sections of the E-260 are separate circuits that rival discrete components in performance and sound. With a simple flick of the EXT PRE switch, the preamplifier can be detached from the power amplifier, allowing the sections to be used individually.

The power amplifier block is configured as an advanced instrumentation amplifier, which enables fully balanced signal transmission throughout. Together with the highly acclaimed current feedback principle, this makes for even better electrical characteristics. In the output stage, high-power audio grade transistors are arranged in a parallel push-pull configuration which significantly enhances the capability to safely drive low-impedance loads.

Output operation is sustained by the power supply with a massive power transformer and large filtering capacitors. This provides high-quality power output of 115 watts x 2 into 4 ohms or 90 watts x 2 into 8 ohms, along with a damping factor of 200, thanks to the redesigned circuitry.

AAVA (Accuphase Analog Vari-gain Amplifier) Volume Control

AAVA is a radically different volume control principle that eliminates all variable resistors from the signal path and uses analog processing to provide top-notch performance and sound quality.

Because the music signal is not affected by changes in impedance due to variable resistors, high signal-to-noise ratio and low distortion are maintained at any volume control setting.

Volume control resolution

AAVA adjusts the listening volume by means of 16 weighted V-I converter amplifiers which are controlled by current switches. The number of possible volume steps set by the combination of these converter amplifiers is 2 to the power of 16 = 65,536.

Input buffer amps use 5-MCS topology

One of the factors that have a bearing on possible noise in an AAVA arrangement is the input buffer design. By connecting five high-performance amps in parallel, excellent S/N ratio is assured.

AAVA maintains high S/N ratio and uniform frequency response

AAVA does not introduce a change in impedance at any volume setting. Consequently, there is no deterioration of S/N ratio, and frequency response remains totally uniform. The benefits are especially apparent at settings that correspond to normal listening levels, because the tonal quality is not altered in any way.

No more left/right tracking error or crosstalk

Because AAVA is an electronic circuit employing fixed-value resistors, there are virtually no left/right tracking differences even at very low volume levels. Since channels can be kept separate, crosstalk also ceases to be a problem.

AAVA means analog processing

The AAVA circuit converts the music signal from a voltage into a current, controls gain by means of current switches, and then reconverts the current into a voltage. The entire process is carried out in the analog domain.

Same operation feel as a conventional high-quality volume control

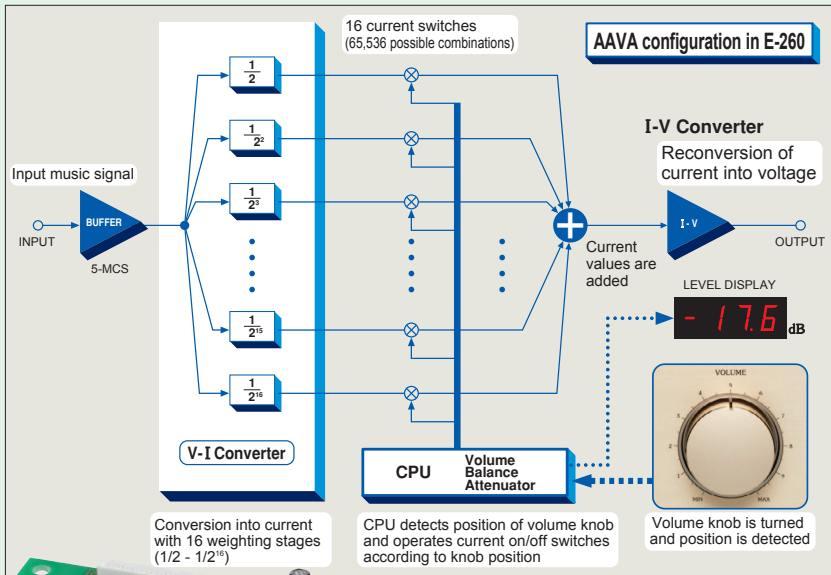
Operating the volume knob feels exactly the same as with a conventional control, and as before, operation via the remote commander is also possible.

Attenuator and balance control also implemented by AAVA

The functions of the attenuator and the left/right balance control are covered by the AAVA circuit as well, eliminating the need for additional circuit stages. Keeping the configuration simple helps to maintain high performance and sonic purity.

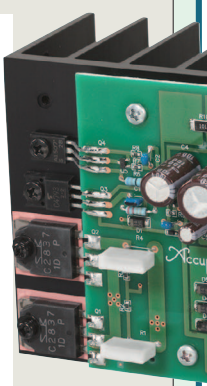
Display shows volume level as numeric value

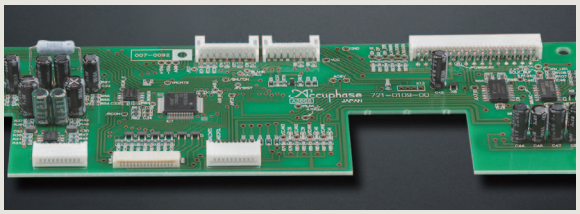
The volume level (degree of attenuation) as set with AAVA is shown as a numeric indication in the center of the front panel. The indication ranges from MAX (0 dB) to MIN (lowest setting).



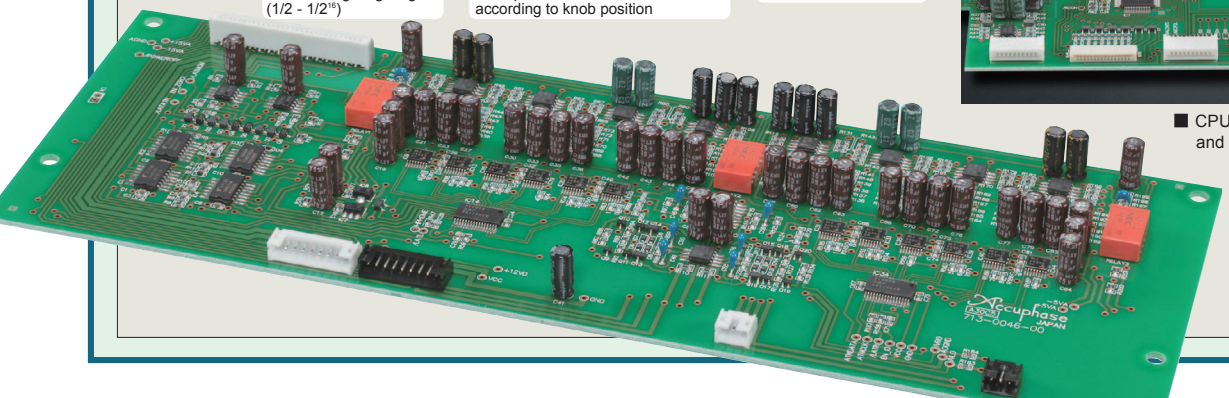
AAVA operation principle

The music signal is converted into 16 types of weighted current by V-I (voltage - current) converting amplifiers [1/2, 1/2², ... 1/2¹⁵, 1/2¹⁶]. The 16 currents are turned on or off by 16 current switches, and the combination of switch settings determines the overall volume. The switching operation is controlled by a CPU according to the position of the volume control knob. The combined signal current forms a variable gain circuit that adjusts the volume. Finally, the combined current is converted back into a voltage by an I-V (current-voltage) converter.





■ CPU assembly for control of AAVA and various other functions



■ AAVA volume control assembly with higher integration density of components and circuitry

Logic relay control and line inputs/outputs

Protection circuitry

Option board slot

■ **Supplied remote commander RC-200**
Allows volume adjustment and input source switching

Large power transformer

Massive heat sink and power amplifier PCB

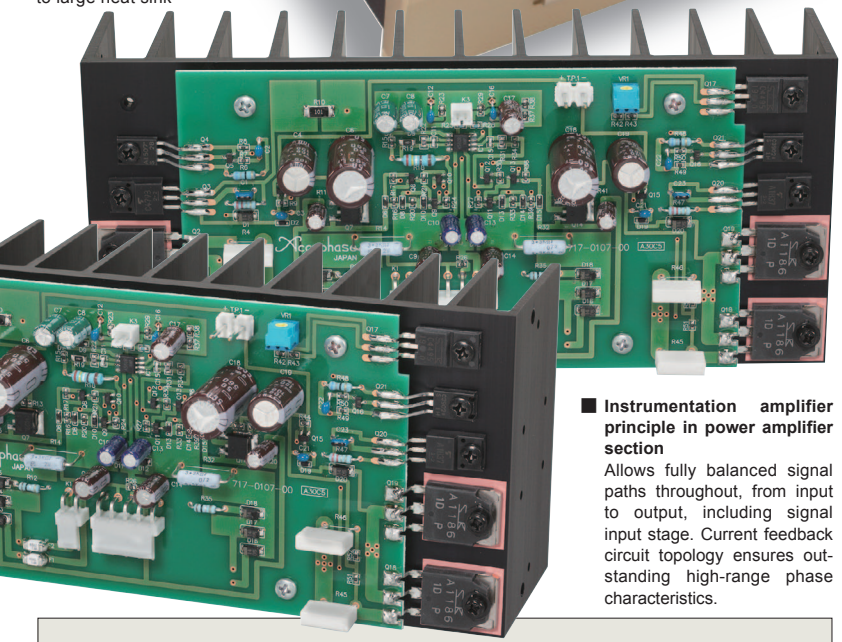
Preamplifier power supply PCB

Massive heat sink and power amplifier PCB

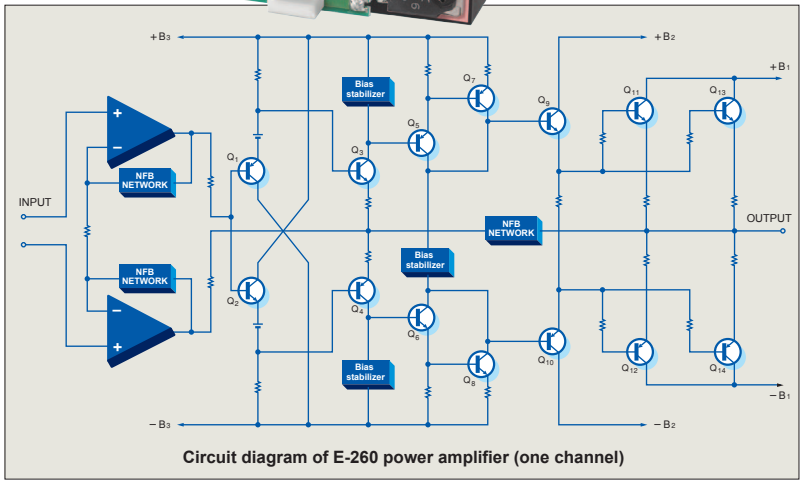
Large filtering capacitors

AAVA volume control PCB

■ Power amplifier assemblies with parallel push-pull output stage, instrumentation amplifier, and current feedback amplifier, directly mounted to large heat sink

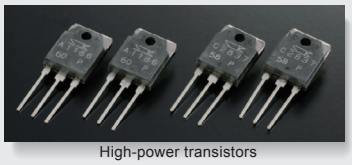


■ **Instrumentation amplifier principle in power amplifier section**
Allows fully balanced signal paths throughout, from input to output, including signal input stage. Current feedback circuit topology ensures outstanding high-range phase characteristics.



Circuit diagram of E-260 power amplifier (one channel)

■ **Power amplifier unit with high-power transistors in parallel configuration delivers ample power: 115 watts/channel into 4 ohms or 90 watts/channel into 8 ohms.**



High-power transistors

■ **Hefty high-efficiency transformer and large filtering capacitors (22,000 µF x 2) provide ample reserves.**

Large power transformer

Filtering capacitors

■ **EXT PRE button and preamplifier output/power amplifier input connectors allow independent use of pre and power amplifier sections.**

MC/MM selector

EXT PRE button

■ **Option board slot allows system expansion. Realize digital input capability (USB, coaxial, optical) or analog record playback. With AD-20 board, MC/MM switching on E-260 front panel is possible.**

■ **Redesigned NFB path results in minimized output impedance and a damping factor as high as 200.**

■ **Two sets of large-size speaker terminals accept Y lugs and enable speaker bi-wiring.**

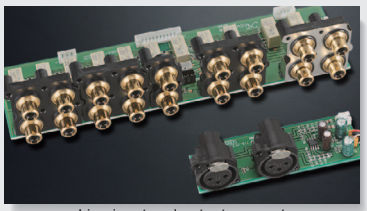
Large speaker terminals

■ **Tone controls using summing active filters for optimum sound quality.**

■ **Loudness compensator for enhanced sonic impact at low listening levels.**

■ **Versatile array of inputs including balanced inputs to shut out external noise interference.**

■ **Balanced inputs with phase selection capability.**



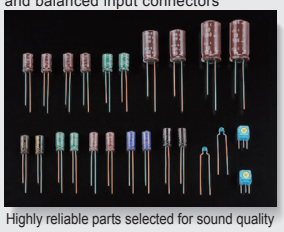
Line input and output connectors and balanced input connectors

■ **Logic-controlled relays assure high sound quality and long-term reliability.**

■ **Analog peak power meters for monitoring output levels.**

■ **Dedicated headphone amplifier optimized for sound quality.**

■ **"High Carbon" cast iron insulator feet with superior damping characteristics further enhance sound quality.**

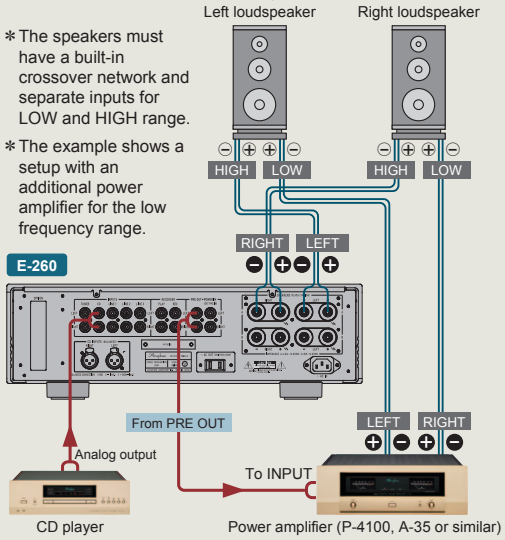


Highly reliable parts selected for sound quality

Connection example for bi-amping setup

In a bi-amped setup, the speaker units for the LOW frequency range and HIGH frequency range are driven by separate amplifiers with equal gain, for even better sound quality.

* The speakers must have a built-in crossover network and separate inputs for LOW and HIGH range.
* The example shows a setup with an additional power amplifier for the low frequency range.



Option Boards

- The E-260 provides one slot for an option board on the rear panel.
- Option boards can be used to implement direct connection of digital signals for high-quality music playback, or to implement high-quality playback of analog records.
- The Analog Disc Input Board AD-9/AD-10 can also be used. In this case, the MC/MM button on the front panel of the E-260 has no effect. MC/MM switching must be performed on the board.

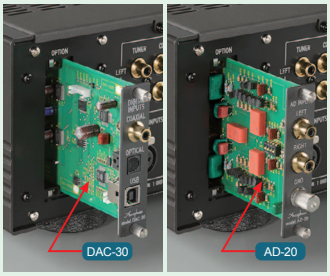
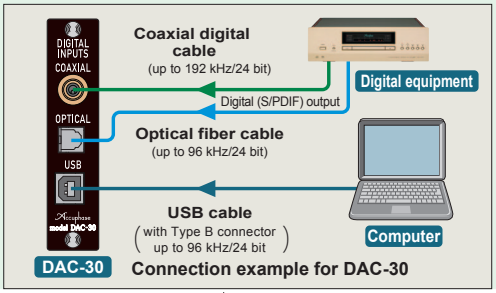


Photo shows an example for option board installation



Digital Input Board DAC-30

Features a high-accuracy MDS (Multiple Delta Sigma) ++ type D/A converter for impeccable sound. The USB port allows connection to a computer with a downloaded music library for playback of high-resolution data with optimum sound quality.

- COAXIAL: 75-ohm coaxial cable
  Sampling frequency 32 kHz - 192 kHz, 24 bit resolution
- OPTICAL: Optical fiber cable
  Sampling frequency 32 kHz - 96 kHz, 24 bit resolution
- USB: USB cable (with Type B connector)
  Sampling frequency 32 kHz - 96 kHz, 24 bit resolution

Analog Disc Input Board AD-20

This board serves for playback of analog records. It contains a high-performance, high-gain phono equalizer.

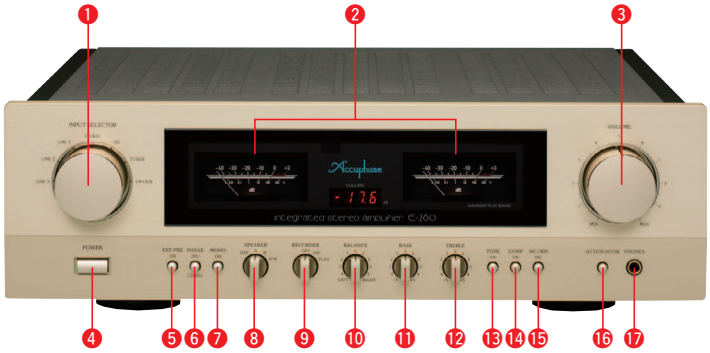
- MC/MM switching is possible on the front panel of the E-260.
- Internal DIP switches control MC input impedance and subsonic filter on/off.

MC	Gain:	62 dB
	Input impedance:	10/30/100 ohms (selectable)
MM	Gain:	36 dB
	Input impedance:	47 kilohms

Line Input Board LINE-10

This option board provides an additional set of unbalanced line inputs.

■ Front panel



■ Rear panel

1. Input selector
   LINE 3 / LINE 2 / LINE 1 / CD-BAL / CD
   TUNER / OPTION
2. Peak power meters
3. Volume level indication
4. Power switch
5. Preamplifier/Power amplifier separator (EXT PRE)
6. Phase selector
7. Mono/Stereo selector
8. Speaker selector OFF / A / B / A+B
9. Recorder selector OFF / ON / PLAY
10. Balance control
11. Bass control
12. Treble control
13. Tone control ON/OFF button
14. Loudness compensator ON/OFF button
15. MC/MM selector
16. Attenuator ON/OFF button
17. Headphone jack
18. Line inputs
    TUNER / CD / LINE 1, 2, 3
19. Recorder inputs and outputs
20. Preamplifier outputs
21. Power amplifier inputs
22. Left/right speaker output terminals (2 sets, A/B)
23. CD inputs (balanced)
24. AC power connector ★

E-260 Guaranteed Specifications

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

- **Continuous Average Output Power (both channels driven, 20-20,000 Hz)**
  115 watts per channel into 4 ohms
  105 watts per channel into 6 ohms
  90 watts per channel into 8 ohms
- **Total Harmonic Distortion (both channels driven, 20-20,000 Hz)**
  0.05% with 4 to 16-ohm load
- **Intermodulation Distortion** 0.01%
- **Frequency Response** HIGH LEVEL INPUT/POWER INPUT
  20 - 20,000 Hz +0, -0.2 dB (for rated continuous average output)
  3 - 150,000 Hz +0, -3.0 dB (for 1 watt output)
- **Damping Factor** 200 (For rated output with 8-ohm load, 50 Hz)
- **Input Sensitivity, Input Impedance**

Input	Input sensitivity		Input impedance
	For rated output	For 1 W output (EIA)	
HIGH LEVEL INPUT	134 mV	14.2 mV	20 kilohms
BALANCED INPUT	134 mV	14.2 mV	40 kilohms
POWER INPUT	1.07 V	113 mV	20 kilohms

- **Output Voltage, Output Impedance** PRE OUTPUT: 1.07 V, 50 ohms (at rated continuous average output)
- **Gain** HIGH LEVEL INPUT → PRE OUTPUT : 18 dB
  POWER INPUT → OUTPUT: 28 dB
- **Tone Controls** Turnover frequency and adjustment range
  BASS: 300 Hz ±10 dB (50 Hz)
  TREBLE: 3 kHz ±10 dB (20 kHz)
- **Loudness Compensation** +6 dB (100 Hz)
- **Attenuator** −20 dB
- **Signal-to-Noise Ratio**

Input	Input shorted (A weighting) S/N ratio at rated output	EIA S/N
HIGH LEVEL INPUT	105 dB	95 dB
BALANCED INPUT	91 dB	94 dB
POWER INPUT	122 dB	101 dB

- **Power Level Meters** Logarithmic compression, peak reading meters, output dB/% scale
- **Load Impedance** 4 - 16 ohms
- **Stereo Headphones** Suitable impedance: 8 ohms or higher
- **Power Requirements** AC 120 V/220 V/230 V 50/60 Hz (Voltage as indicated on rear panel)
- **Power Consumption** 49 watts idle
  245 watts in accordance with IEC 60065
- **Maximum Dimensions** Width 465 mm (18-5/16")
  Height 151 mm (5-15/16")
  Depth 420 mm (16-1/2")
- **Mass** 20.0 kg (44.0 lbs) net
  26.0 kg (57.3 lbs) in shipping carton

■ Supplied accessories:
- **AC power cord**
- **Remote commander RC-200**

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.*

• Specifications and design subject to change without notice for improvements.
http://www.accuphase.com

Accuphase
ACCUPHASE LABORATORY, INC.

K1205Y PRINTED IN JAPAN 850-2176-00 (B1)