INTEGRATED STEREO AMPLIFIER

E-213

- MCS topology in preamplifier and power amplifier sections
- Parallel push-pull output stage delivers high quality power 90 watts × 2 into 8 ohms
- Current feedback principle in power amplifier combines superb sound with total operation stability
- Logic-control relays permit straight and short signal paths
- Option board slot provides capability for digital signal input and analog record playback
The integrated amplifier series E-200 enjoys an enviable reputation, both in Japan and abroad. The E-213 embodies the sophisticated design concept of this series while featuring latest circuit topology and top quality materials. This results in further improved sound from an integrated amplifier that excels in all aspects. It brings out the inherent qualities of the source with total fidelity. Embark on a journey of musical discovery and discover the sheer beauty of sound.

An integrated amplifier offers various advantages such as convenient operation and modest space requirements. However, because its overall gain is very high, even the slightest interference or crosstalk at the input can have a considerable effect on the sonic result. To preclude this possibility, the E-213 is designed to achieve total electrical and structural separation of the preamplifier and power amplifier sections. These two parts operate as if they were entirely separate components, which significantly enhances the purity of sound. An EXT PRE switch and dedicated inputs even allow independent use of the power amplifier section.

Both the preamplifier and power amplifier use the proprietary MCS (Multiple Circuit Summing) principle developed by Accuphase, which significantly improves S/N ratio and other vital parameters. In addition, the power amplifier section incorporates the highly acclaimed current feedback topology from Accuphase. This ensures excellent phase characteristics in the high frequency range, combining total operation stability with outstanding frequency response.

The power amplifier output stage adopts a parallel push-pull configuration of multi-emitter power transistors designed for high-power audio applications. The large power transformer in the parallel push-pull configuration and mounted directly on a large heat sink assures efficient dissipation of thermal energy.

The output devices are multi-emitter power transistors designed for high power audio applications. These devices have excellent frequency response, forward-current transfer ratio linearity, and switching performance characteristics. They are connected in a parallel push-pull configuration and mounted directly on a large heat sink to assure efficient dissipation of thermal energy.

Current feedback circuit topology in the power amplifier section prevents phase shifts and assures excellent sound quality.

In the power amplifier section of the E-213, the signal current rather than the more conventionally used voltage is used for feedback. Because there is almost no phase shift, phase compensation can be kept to a minimum, resulting in excellent transient response and superb sonic transparency. Furthermore, frequency response remains unchanged even when gain changes.

Figure 4 shows frequency response curves for different gain settings of the current feedback amplifier. It is evident that characteristics remain uniform over a wide range.
Highly reliable logic-controlled relays for best sound quality

Program source switching is performed by logic-controlled relays which are arranged so as to permit straight and short signal paths for enhanced sonic purity. The hermetically sealed relays are high-quality types developed specifically for demanding communication applications. The contacts are twin crossbar types plated with gold for minimum contact resistance and outstanding long-term reliability.

Tone controls use summing active filters for pure sound

The tone control circuitry in the E-213 features summing active filters. Figure 5 illustrates the operation principle of this circuit. The flat signal is passed straight through, and only when an adjustment is required, the characteristics created at $F_1$ and $F_2$ are added to the signal, thereby producing the desired change. This design provides efficient control without degrading signal purity.

Large power transformer and high filtering capacity

The E-213 features a large power transformer with a rating of 400 VA. The transformer is mounted in an enclosure filled with damping material that has excellent heat transfer characteristics. This design prevents unwanted interaction with the rest of the amplifier. Two massive electrolytic capacitors, each rated for 22,000 µF, are used to filter the current. This ample performance margin of the power supply ensures dynamic sound down to very deep frequencies.

EXT PRE switch and power amplifier inputs allow separate use of power amplifier section

The preamplifier section and power amplifier section are designed as separate entities. A convenient EXT PRE switch and dedicated inputs make it easy to use the power amplifier of the E-213 on its own.

Two sets of heavy-duty speaker terminals

Two sets of oversized speaker terminals are provided which accept also heavy-gauge speaker cable.
The following three types of option boards are available for the E-213: Digital Input Board DAC-10, Analog Disc Input Board AD-9, and Line Input Board LINE-9.

Choose the board according to the intended usage, and install it in the convenient rear-panel slot. (Only one board can be used at a time.)

- The Analog Disc Input Board AD-10 and Line Input Board LINE-10 can also be used.

Option Boards

Digital Input Board DAC-10

The board features an MDS (Multiple Delta Sigma) D/A converter and has inputs for coaxial and optical fiber connections.

A CD player, MD or DAT recorder or other component with digital output (sampling frequency range 32 - 96 kHz, 24 bit) can be connected to the board, for high-quality music reproduction.

Analog Disc Input Board AD-9

This board contains a high-performance, high-gain phono equalizer:

- Internal DIP switches control MM/MC operation, MC input impedance, and subsonic filter on/off.
- Gain
  - MM: 36 dB
  - MC: 62 dB

- Input impedance:
  - 10/30/100 ohms (selectable)

Line Input Board LINE-9

This option board provides an additional set of conventional line inputs which can be used to connect a CD player, tuner, or other component with analog output.

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 8 ohms
  - 90 watts per channel into 8 ohms

- Total Harmonic Distortion (both channels driven, 20 – 20,000 Hz)
  - 0.04%, with 4 to 16-ohm load

- Intermodulation Distortion
  - 0.01%

- Frequency Response
  - POWER INPUT: 20 – 20,000 Hz, 0 – 0.2 dB
  - HIGH LEVEL INPUT: 20 – 20,000 Hz, 0 – 0.2 dB

- Damping Factor
  - 4 - 16 ohms

- Load Impedance
  - 0.04%, with 4 to 16-ohm load

- Input Sensitivity, Input Impedance

<table>
<thead>
<tr>
<th>Input</th>
<th>For rated output</th>
<th>For 1 W output (EIA)</th>
<th>Input impedance</th>
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</thead>
<tbody>
<tr>
<td>HIGH LEVEL INPUT</td>
<td>213 mV</td>
<td>22.5 mV</td>
<td>20 kHz</td>
</tr>
<tr>
<td>BALANCED INPUT</td>
<td>213 mV</td>
<td>22.5 mV</td>
<td>40 kHz</td>
</tr>
<tr>
<td>POWER INPUT</td>
<td>1.07 V</td>
<td>113 mV</td>
<td>20 kHz</td>
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<tr>
<td>Gain</td>
<td>HIGH LEVEL INPUT</td>
<td>OUTPUT: 42 dB</td>
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<tr>
<td>Tone Controls</td>
<td>POWER INPUT</td>
<td>OUTPUT: 28 dB</td>
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<tr>
<td>Loophorn</td>
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<tr>
<td>Attenuator</td>
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<tr>
<td>Signal-to-Noise Ratio</td>
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</table>

- Power Level Meters
  - Logarithmic compression, peak reading meters (Output dB / % scale)

- Stereo Headphones
  - Suitable impedance: 8 – 100 ohms

- Power Requirements
  - AC 120 V/230 V (Voltage as indicated on rear panel) 50/60 Hz

- Power Consumption
  - 43 Watts idle
  - 90 watts at 100 watts for 1.5 hours

- Maximum Dimensions
  - Width: 475 mm (18-11/16")
  - Height: 150 mm (5-7/8")
  - Depth: 422 mm (16-5/8")

- Mass
  - 18.8 kg (41.4 lbs)
  - 23.0 kg (50.7 lbs) in shipping carton

- Supplied Remote Commander RC-23

Remote control principle: Infrared pulse

- Power supply: 3 V DC (IEC R6 batteries x 2)
- Maximum dimensions: 45 (W) x 136 (H) x 18 (D) mm
- Weight: 85 g (including batteries)

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