

Precision Integrated Stereo Amplifier E-5000



Accuphase Laboratory, Inc.

The New E-5000 is the flagship high-power Class AB integrated amp developed as the 4th model of Accuphase's 50-years anniversary.

The E-5000 offers the all technologies we acquired through power amp and pre-amp development and achieves high power output of 240W into 8 ohms with sophisticated sound quality.

Our superior Balanced AAVA principle is featured in the volume control circuit, the E-5000 presents every piece of music in exquisite details. In the power amp section, the instrumentation amplifier configuration with fully balanced inputs achieves the ideal power amplification while suppressing the noise influences.

The fully balanced circuits through the pre-amp to power amp section are realized, the E-5000 breaks into a brand new field with the cutting-edge technologies and vibrant sound quality.

Dimensions and weight

- The largest Class AB integrated amplifier in Accuphase



Accuphase Laboratory, Inc.

2

The E-5000 is the largest Class AB integrated amp in Accuphase lineup, compared to the E-800 which is the flagship Class A integrated, The E-5000 has same depth size but 28 mm shorter height.



	Width	Height	Depth	Weight
E-480	465 mm	181 mm	428 mm	24.6 kg
E-5000	465 mm	211 mm	502 mm	33.8 kg
E-800	465 mm	239 mm	502 mm	36.0 kg

Front and rear view



Accuphase Laboratory, Inc.

3

The E-5000 follows the traditional front panel design of integrated amp.

A newly developed large needle power meter is able to move even at the small volume level less than -60dB.

The multi-function display in the center of panel shows the volume level and the sampling frequency when the DAC option board is installed.

Two expansion slots for option boards are prepared.

Internal View



Accuphase Laboratory, Inc.

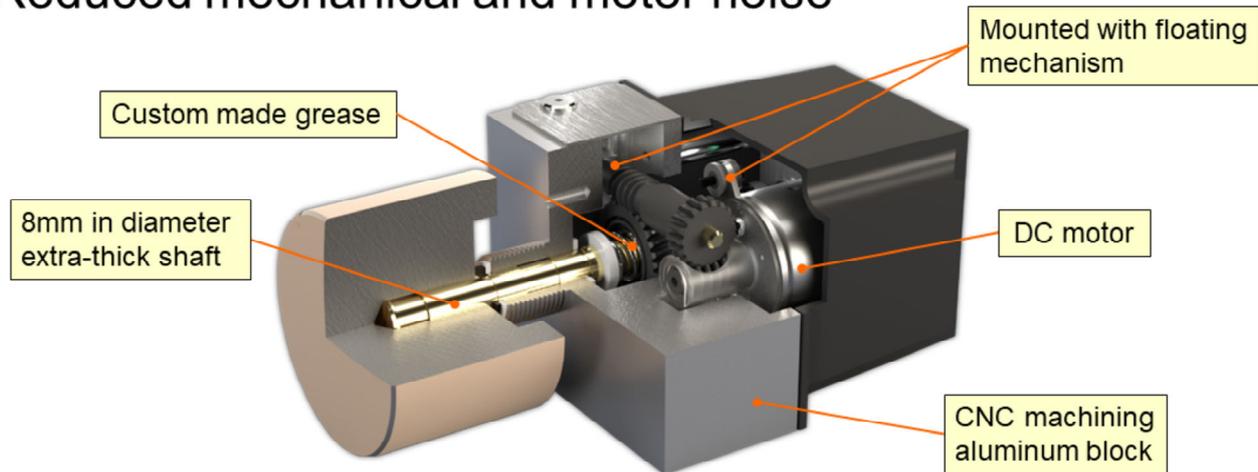
4

E-5000 has the mono-block construction. The strong power supply with massive, specially-made and high-efficiency toroidal transformer and 40000 μ F filtering capacitors are installed in the center of the unit. In addition, the two power amplifier modules are kept separate for the left and right channels.

Balanced AAVA module is set at the front of the unit to avoid the noise interference. The accurate operation is performed with the custom-made high-accuracy volume sensor.

Custom made volume sensor mechanism

- Distinguished operation feeling
- Reduced mechanical and motor noise



Accuphase Laboratory, Inc.

5

The music signal does not pass the volume mechanism in balanced AAVA principle, it is just a position sensor to detect the volume level.

However, the feeling of the volume knob is very important for audio enthusiasts.

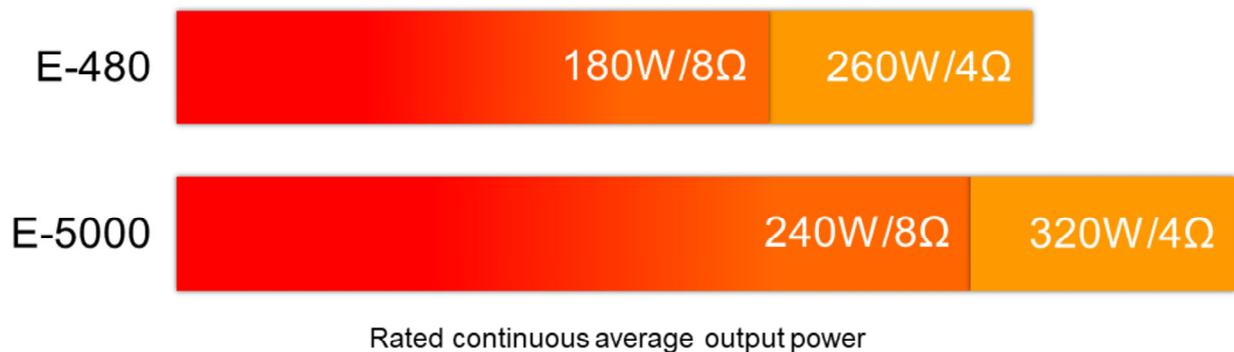
Therefore the volume sensor mechanism of splendid operation feeling was newly developed in C-3800's project.

In the E-5000, the motor and the set of gears are mounted with the floating mechanism, and with the custom-made grease, the knob provides a smooth operation feel and super-quiet volume adjustment.

The volume sensor mechanism float from the chassis to block off the vibration with specially made silicon rubbers.

Output power

- The highest output power in Accuphase integrated amps



Accuphase Laboratory, Inc.

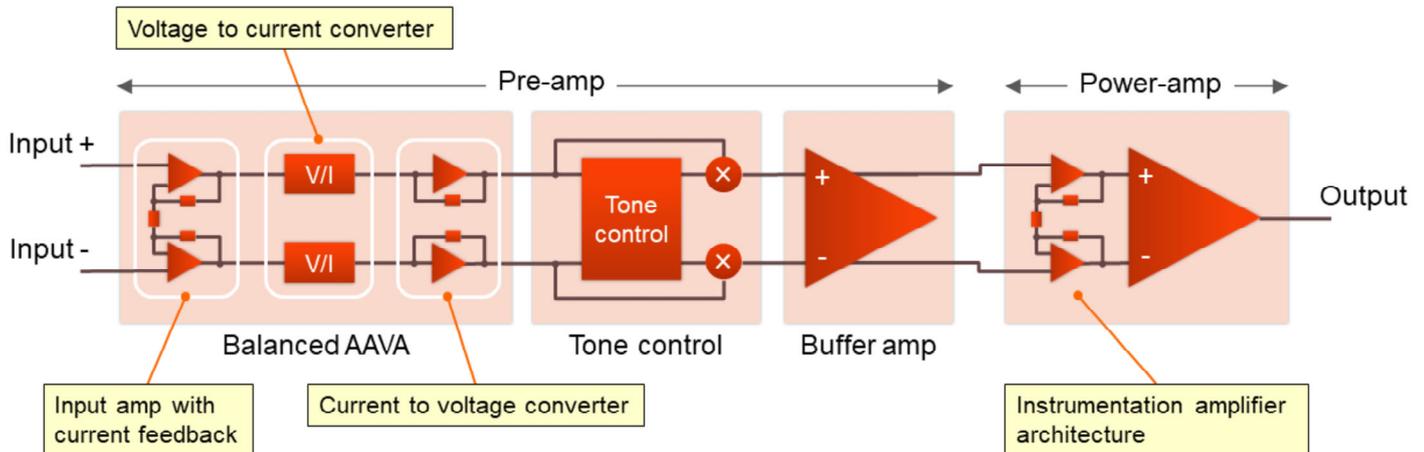
6

The E-5000 has the highest output power in Accuphase integrated amps, the rated continuous average output is 240W/8Ω.

The E-5000 perfectly drives any loudspeakers even low-efficiency ones.

Fully balanced configuration

- The fully balanced configuration from Pre-amp inputs to Power amp inputs



Accuphase Laboratory, Inc.

7

The AAVA (Accuphase Analog Vari-gain Amplifier) is a radically different volume control principle that eliminates all variable resistors from the signal path.

The E-5000 employs two AAVA modules per channel with a fully balanced configuration.

What's more, in the pre-amp section, up to the tone control circuit and the output buffer amp are balanced.

The power amplifier section can receive those positive and negative signals at the same time by the instrumentation amplifier topology.

It works as the totally balanced circuit which is tolerant to the internal and external harmful noise.

Ultra low noise

- Splendid noise performance equal to the E-800
 - Guaranteed equivalent input noise: $0.63\mu\text{V}$ (-124dBV)

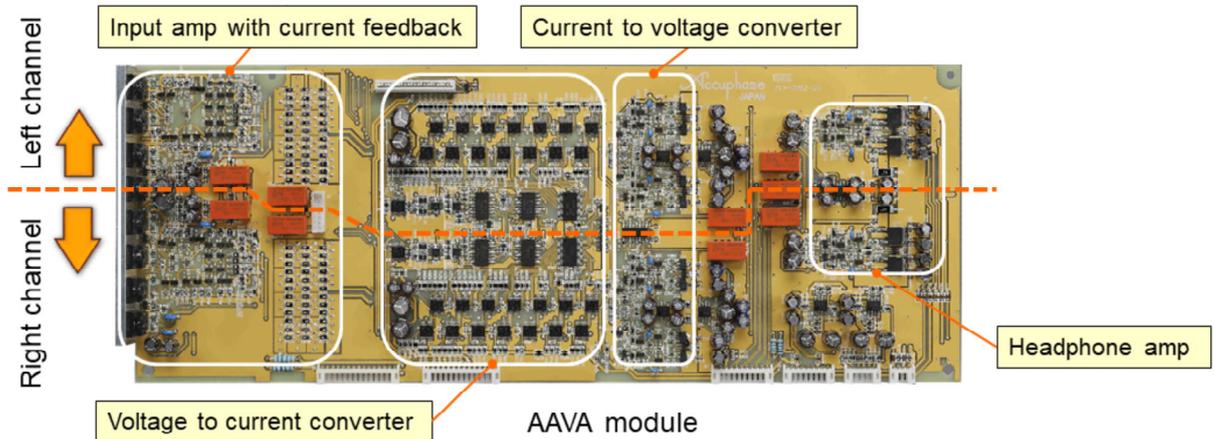


Guaranteed equivalent input noise @high level input

The E-5000 realizes -124dB ($0.63\mu\text{V}$) of equivalent input noise equal to the flagship class-A integrated amp E-800.

AAVA module

- Balanced AAVA architecture
- Fully balanced configuration



Accuphase Laboratory, Inc.

9

The Balanced AAVA circuit is ideally arranged on the gold-plated PCB, not just realizing the ultra low noise characteristics, but also contributing to the long term reliability and maintaining the fine sound quality.

Dedicated, high-quality headphone amplifier constructed with discrete components features the high output current and stability to drive various headphones.

Super high damping factor

- Super high damping factor equal to the P-7300



Accuphase Laboratory, Inc.

10

The E-5000 achieves 1000 of guaranteed Damping-Factor, equal to the flagship Class AB stereo power amp P-7300.

*Damping-Factor, DF:

An index of speaker driving ability. Higher Damping-Factor amplifier has higher speaker driving ability.

$DF = 8 \text{ ohm} / \text{Output-impedance}$

Technology for high damping factor

- Very low output impedance power amplifier engine
 - Same circuit configuration as Class-AB stereo power amp P-7300
 - Bipolar transistor 5 parallel push-pull output stage



Accuphase Laboratory, Inc.

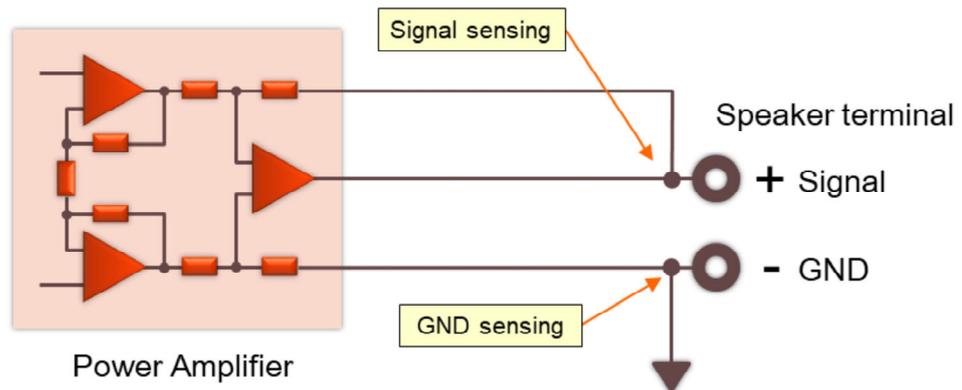
11

The output impedance is made lower by 5 parallel push-pull final stage arrangement of bi-polar transistors.

Circuit configuration of the power amplifier engine is as same as the flagship Class AB stereo power amplifier P-7300.

Technology for high damping factor

- Balanced Remote-sensing
 - Feedback from speaker terminal proximity
 - Signal-line and GND-line sensing



Accuphase Laboratory, Inc.

12

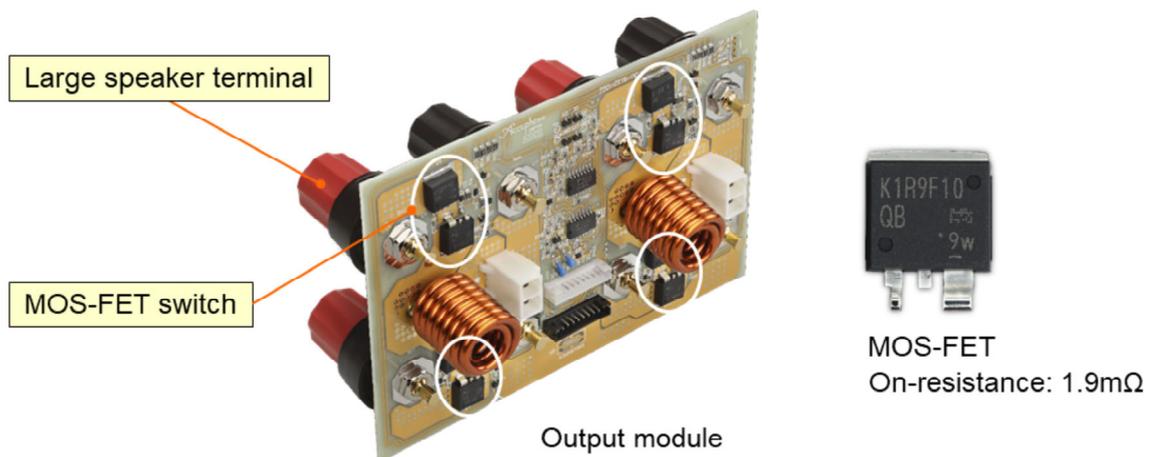
Remote Sensing is the technique to lower the output impedance of amplifier by the negative feedback with signal sensing from nearby the speaker terminals.

Balanced Remote Sensing is the technique to make the output impedance even lower by both the signal sensing and the GND sensing, that is the negative feedback of GND level.

Not only Damping Factor, but also Total Harmonic Distortion and Intermodulation Distortion are all improved by the Balanced Remote Sensing.

Technology for high damping factor

- Speaker protection equipped with MOSFET switch circuit
- Short signal path configuration



Accuphase Laboratory, Inc.

13

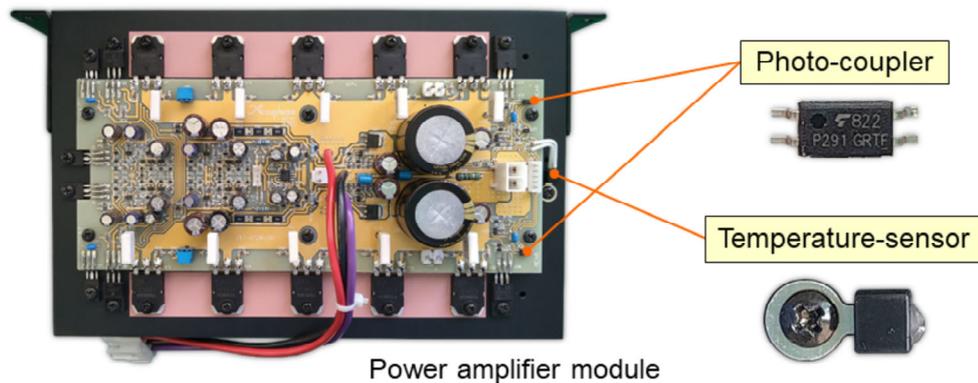
Mechanical relays are the common components for speaker protection but the contact resistance of mechanical relay is higher than people think. Therefore, Accuphase has chosen the MOS-FET switch instead of conventional mechanical relays for speaker protection.

Thanks to this MOS-FET switch, the damping factor, reliability and sound quality are all improved. E-5000 features the new MOS-FET device for this switch which has very low on-resistance.

E-5000 employs carefully-selected very low-impedance components such as the large speaker terminals and so on. Making signal paths thick and short also helps attaining the low impedance.

Pursuing further product safety and reliability

- Power amplifier
 - Newly-developed protection circuit using Photo-couplers
 - Temperature-sensors are installed on the heatsink



Accuphase Laboratory, Inc.

14

The newly designed output protection circuit can detect any short-circuiting of the speaker terminals with due consideration for the product safety.

Temperature-sensors which detects the heatsink temperature are installed on the heatsink. Thanks to this, the unit accurately ascertains the high temperature alarm in power amplifier section.

Thanks to the photo-coupler, the detected short-circuiting information is completely isolated from the music signal to minimize the negative effects on the sound quality.

****When these protection circuits are activated, the unit completely interrupts speaker output and makes the power meters flash to indicate the abnormal condition.**