

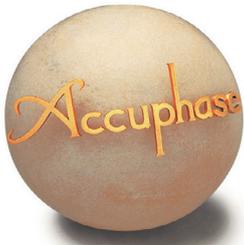
Accuphase

INTEGRATED STEREO AMPLIFIER

E-470

● Revolutionary AAVA volume control ● Output stage with triple parallel push-pull power MOS-FETs produces quality power: 180 watts x 2 into 8 ohms ● Instrumentation amplifier principle for power amplifier input stage allows fully balanced signal transmission, complemented by MCS+ topology and current feedback amplification circuitry ● Logic-control relays for shortest signal paths ● Strong power supply with massive high-efficiency transformer and large filtering capacitors ● POWER IN button allows separate use of preamplifier and power amplifier sections ● Numeric indication of volume level





The Excitement and Dynamism of High Power — An integrated amplifier approaching the performance grade and functionality of separate components. Preamplifier section features latest version of AAVA volume control with even higher performance, along with instrumentation amplifier configuration for fully balanced signal paths. MCS+ topology and current feedback principle for amplification circuitry enable extremely low output impedance and realize a damping factor exceeding the 500 mark. Triple parallel push-pull arrangement of power MOS-FET devices together with massive power supply deliver 260 watts per channel into 4 ohms.

Inheriting outstanding technology from Accuphase's 40th anniversary commemorative models such as the preamplifier C-3800 and power amplifier A-200, the E-470 represents a full model change from the E-460. As the seventh generation entry in the E-400 series, it features advanced design technology and state-of-the-art circuitry, giving this high-class integrated amplifier an almost uncanny power to reproduce even the finest nuances in the music. Internally, the preamplifier and power amplifier sections are kept entirely separate, in order to allow each to develop their full potential, rivalling the performance and sonic excellence of

separate type components. With a simple flick of a switch, the POWER IN feature allows individual use of the two sections. At the heart of the preamplifier section is a further evolved AAVA type volume control, and the power amplifier block is configured with the latest instrumentation amplifier topology, enabling fully balanced signal transmission throughout. The MCS+ approach improves crucial performance parameters by employing multiple identical circuits in parallel, and current feedback provides optimum stability. As a result, the low impedance output stage achieves a damping factor of 500. MOS-FET switches are used in

place of relays for speaker protection, helping to ensure superb electrical characteristics and improve long-term reliability. Power MOS-FET devices arranged in triple parallel push-pull pairs for each channel greatly enhance the ability of the amplifier to drive low-impedance loads. Output operation is sustained by the massive power supply with a large toroidal power transformer and filtering capacitors with high capacity. With plenty of reserves, as demonstrated by the rating of 260 watts x 2 into 4 ohms or 180 watts x 2 into 8 ohms, the E-470 creates a sound stage of brilliant musicality and amazing realism.

- Power MOS-FETs in triple parallel push-pull configuration deliver ample power: 180 watts/channel into 8 ohms or 260 watts/channel into 4 ohms.
- Power amplifier stage features instrumentation amplifier configuration for balanced signal transmission. MCS+ topology and current feedback principle assure excellent phase characteristics in high range.
- Strong power supply with massive high-efficiency toroidal transformer and large filtering capacitors (40,000 μF x 2).
- Individual phase setting supported for each input position.
- Versatile array of inputs with two balanced inputs to shut out external noise interference.
- POWER IN button along with preamplifier output and power amplifier input connectors allow independent use of both sections. Both line level and balanced connectors are provided.
- Semiconductor (MOS-FET) switches used for speaker protection circuitry prevent contact problems and ensure long-term reliability. Eliminating mechanical contacts from the signal path also further enhances sound quality.
- Two option board installation slots on the rear panel provide further versatility. With the AD-30 or AD-20 board, MC/MM switching on the front panel is possible.
- DAC input selector button allows input selection when using the Digital Input Board DAC-40 With USB Port. Display of the sampling frequency of the locked digital signal is also possible.
- Logic-controlled relays for signal switching assure high sound quality and long-term reliability.
- Dedicated headphone amplifier optimized for sound quality.
- Analog peak power meters with new type of LED lighting.
- Two sets of large-size speaker terminals accept also Y lugs.
- Balanced remote sensing technology provides balanced feedback for both the signal and GND lines from near the speaker terminals to ensure low impedance and high damping factor.



Toroidal power transformer



Filtering capacitors



POWER IN selector button



DAC input selector button and LED indicators



COAX, OPT, USB DAC selector buttons



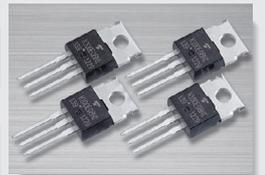
PHASE selector button



MC/MM selector button



Sampling frequency display example



MOS-FET switches



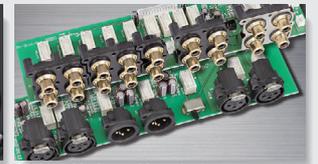
Large speaker terminals



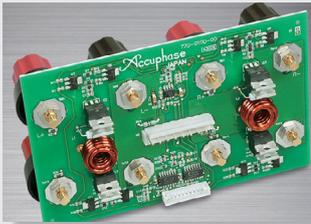
Preamplifier balanced output connectors



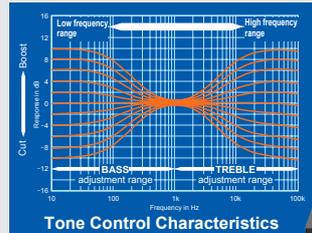
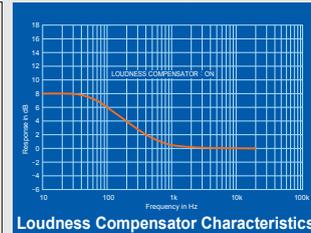
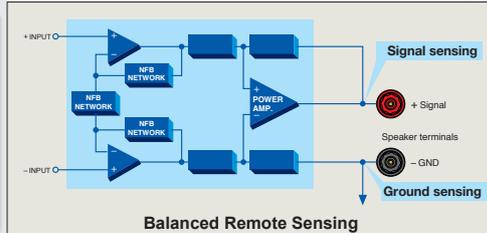
Power amplifier balanced input connectors



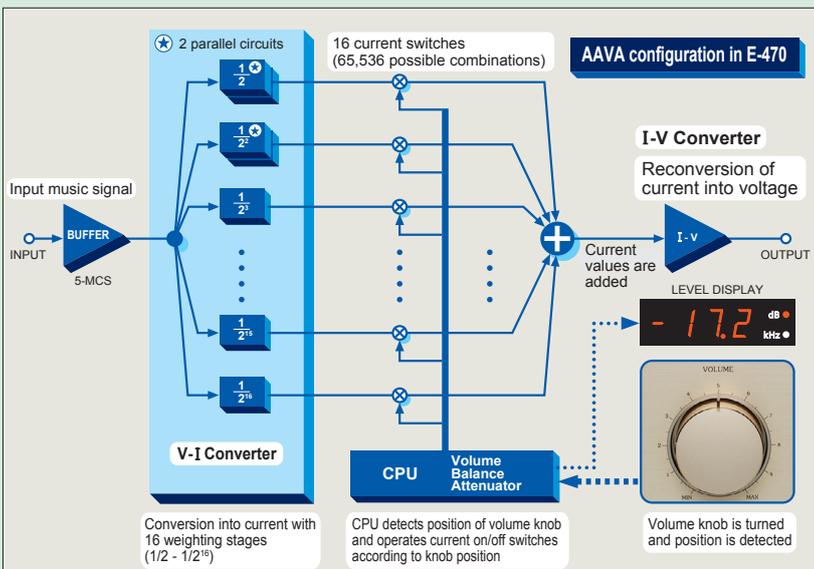
Line and balanced input/output connectors



Protection circuitry



AAVA (Accuphase Analog Vari-gain Amplifier) Volume Control



- Configuration with a total of 18 V-I converter amplifiers, paralleled for upper two units, reduces overall AAVA impedance to one half and results in lower noise. Input stage with five buffer amplifiers ensures powerful drive capability.
- No more left/right tracking differences or crosstalk.
- Amplifier display shows accurate gain as numeric indication.
- High S/N ratio, low distortion, uniform frequency response and optimal sound quality maintained at any volume setting.
- Attenuator and balance control also implemented by AAVA, eliminating additional circuitry.
- Volume control resolution: Combination of V-I converter amplifiers gives 65,536 possible volume steps.



Logic-controlled relays and line input and output connectors

Protection circuit assembly

Massive high-efficiency power transformer

Large heat sink and power amplifier assembly

Option board slots

Large heat sink and power amplifier assembly

Large filtering capacitors

AAVA-volume control assembly



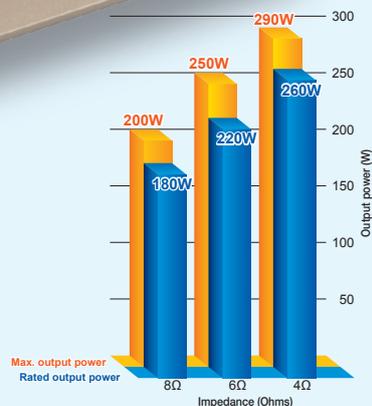
Supplied remote commander RC-220
Allows volume adjustment and input source switching.



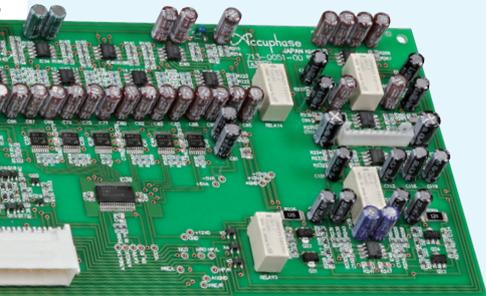
Power MOS-FETs

Power amplifier assembly

Power amplifier assembly and output stage with triple parallel push-pull power MOS-FETs directly mounted to large heat sink.



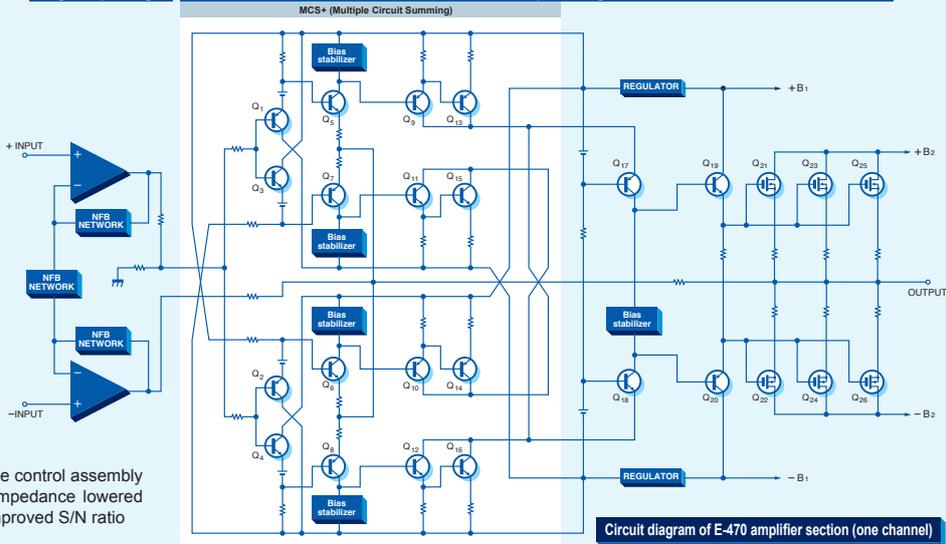
Output power characteristics



AAVA volume control assembly with circuit impedance lowered to 1/2 and improved S/N ratio

Signal input stage

Power amplifier stage



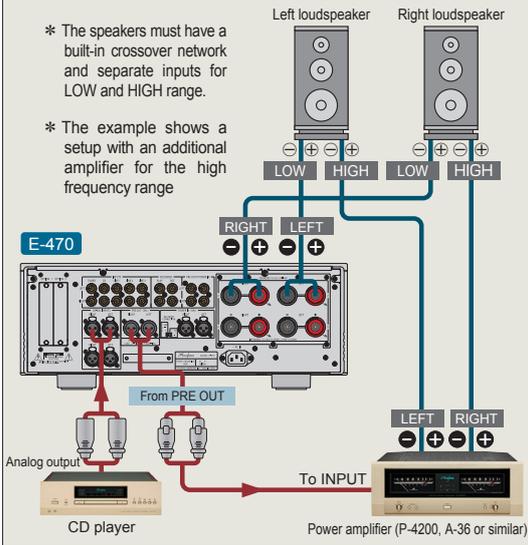
Circuit diagram of E-470 amplifier section (one channel)

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 of equal gain, for even better sound quality.

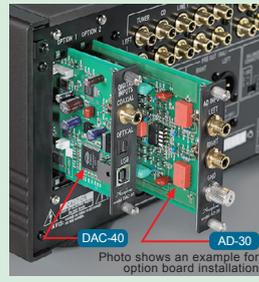
* The speakers must have a built-in crossover network and separate inputs for LOW and HIGH range.

* The example shows a setup with an additional amplifier for the high frequency range



Option Boards

- Two slots allowing easy insertion of option boards are provided on the rear panel.
- Option boards can be used to implement high-quality reproduction of a digital music signal supplied directly to the amplifier, or high-quality reproduction of analog records.
- It is also possible to install two identical boards.



Digital Input Board

DAC-40

Features a high sound quality, high-performance MDS++ D/A converter. The USB port allows connection to a computer via USB cable, for reproduction of high-resolution music library data with superior sound quality.

- COAXIAL:** For 75-ohm coaxial cable
Supported sampling frequency range: 32 kHz to 192 kHz, 24 bit
- OPTICAL:** For optical fiber cable
Supported sampling frequency range: 32 kHz to 96 kHz, 24 bit
- USB:** For USB cable (Type B connector)
Supported sampling frequency range: 32 kHz to 192 kHz, 24 bit

Analog Disc Input Board

AD-30

Features a high-performance, high-gain phono equalizer for playback of analog records with outstanding sound quality.

- MC/MM switching is possible on the front panel of the E-470.
- Internal DIP switches control MC input impedance and subsonic filter on/off.

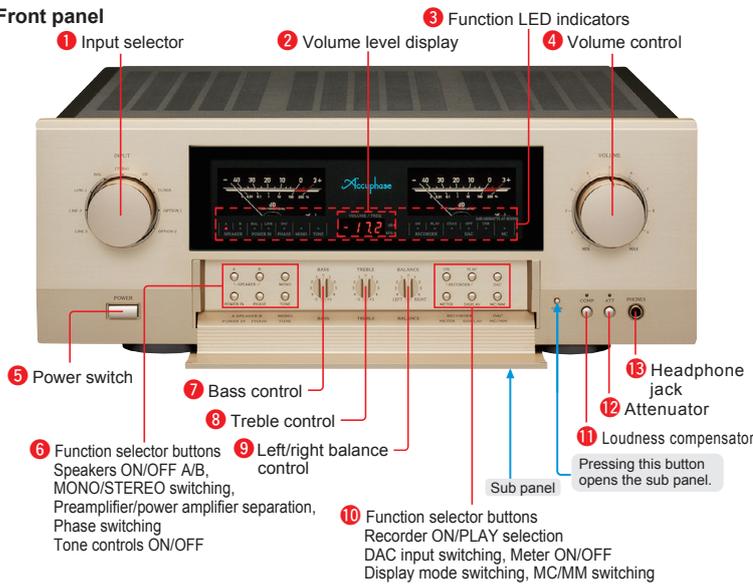
MC	Gain: 66 dB Input impedance: 30/100/300 ohms (selectable)
MM	Gain: 40 dB Input impedance: 47 kilohms

Line Input Board

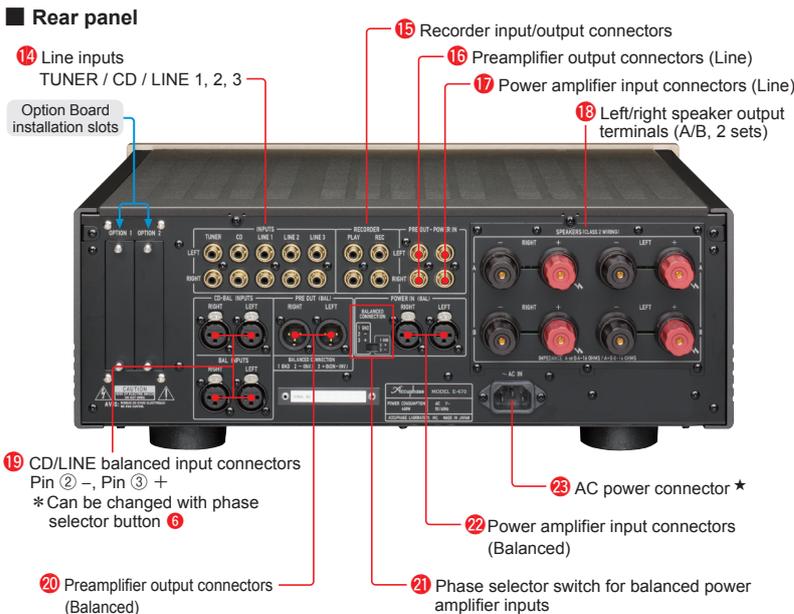
LINE-10

Provides a set of general line level inputs.

Front panel



Rear panel



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.

Supplied accessories:

- AC power cord
- Remote Commander RC-220

E-470 Guaranteed Specifications

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

- Rated Continuous Average Output Power** (both channels operating simultaneously, 20 - 20,000 Hz)
260 W/ch 4-ohm load
180 W/ch 8-ohm load
- Total Harmonic Distortion** (both channels operating simultaneously, 20 - 20,000 Hz)
0.05% 4 to 16 ohm load
- Intermodulation Distortion** 0.01%
- Frequency Characteristics** HIGH LEVEL INPUT
At rated continuous average output:
20 - 20,000 Hz 0, -0.5 dB

POWER IN

At rated continuous average output:
20 - 20,000 Hz +0, -0.2 dB
At 1 watt output: 3 - 150,000 Hz +0, -3.0 dB

- Damping Factor** 500 (with 8-ohm load, 50 Hz)
- Input Sensitivity, Input Impedance**

Input	Sensitivity		Input impedance
	For rated output	For 1 W output (EIA)	
HIGH LEVEL INPUT	190 mV	14.2 mV	20 kΩ
BALANCED INPUT	190 mV	14.2 mV	40 kΩ
POWER IN	1.51 V	113 mV	20 kΩ

- Output Voltage, Output Impedance**

PRE OUTPUT 1.51 V 50-ohm (at rated continuous average output)

- Gain**

HIGH LEVEL INPUT → PRE OUTPUT: 18 dB
POWER IN → 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
- S/N Ratio, Input-converted Noise**

Input	Input shorted (A weighting)	S/N ratio (EIA)
	S/N ratio at rated output	
HIGH LEVEL INPUT	109 dB	97 dB
BALANCED INPUT	102 dB	97 dB
POWER IN	125 dB	101 dB

- Power Meters**

Logarithmic peak level indication, shown in dB and %

- Load Impedance**

4 - 16 ohms

- Stereo Headphones**

Suitable impedance: 8 ohms or higher

- Power Requirements**

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

- Power Consumption**

92 watts idle
420 watts in accordance with IEC 60065
611 watts for rated output into 8 ohms

- Maximum Dimensions**

Width 465 mm (18.31")
Height 181 mm (7.13")
Depth 428 mm (16.85")

- Mass**

24.5 kg (54.1 lbs)
31.0 kg (68.3 lbs) in shipping carton



ACCUPHASE LABORATORY, INC.