CLASS-A STEREO POWER AMPLIFIER

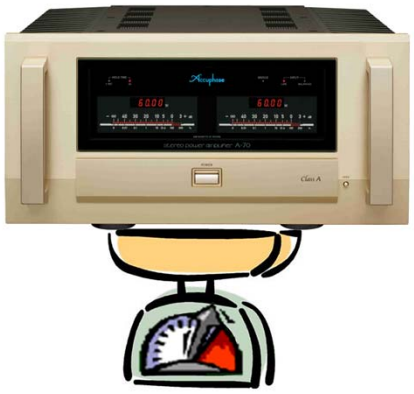
A-70

Accuphase Laboratory, Inc. 1

A-70 is a succession model of A-65 and the flag ship class-A stereo power amplifier of Accuphase.
We've already launched the flag ship class-A monophonic power amplifier A-200 as 40 years anniversary model.
Technologies of A-200 were diverted to A-70.
In short, A-70 is stereo version of A-200.

Dimensions and Weight

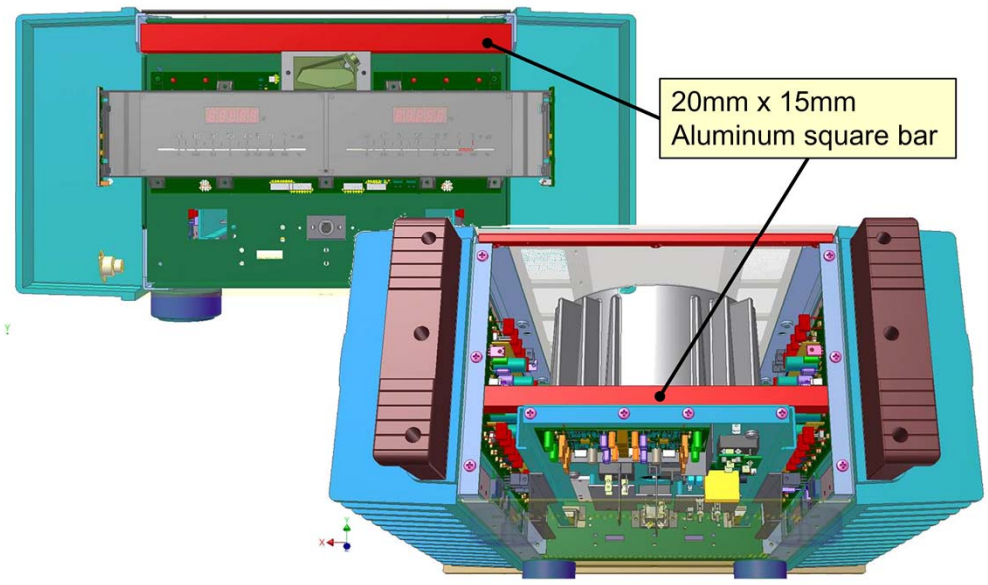
- Same dimensions as the former model A-65
  - Width 465mm
  - Height 238mm
  - Depth 515mm
- 1.3kg heavier than A-65
  - Weight 44.3kg net



Accuphase Laboratory, Inc. 2

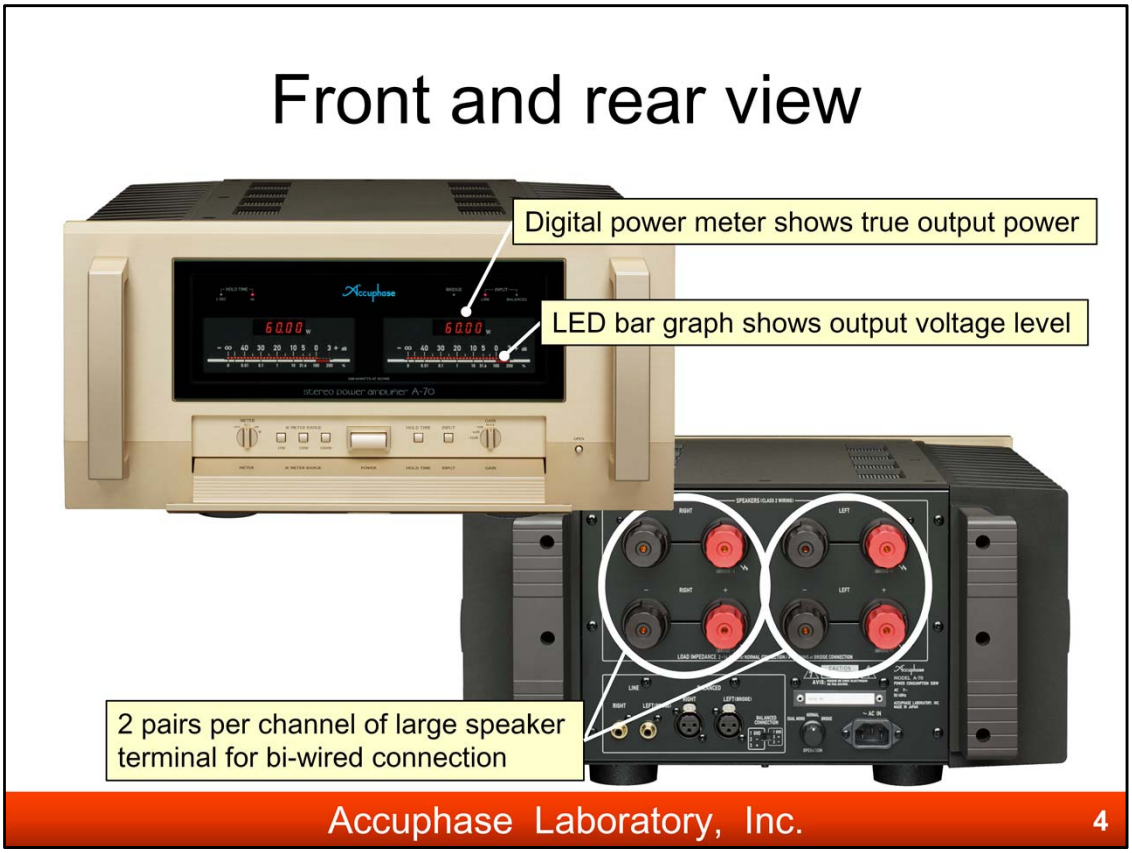
The size of A-70 is as same as the former model A-65. However A-70 is 1.3kg heavier than A-65 as chassis structure is reinforced.

Reinforced internal structure

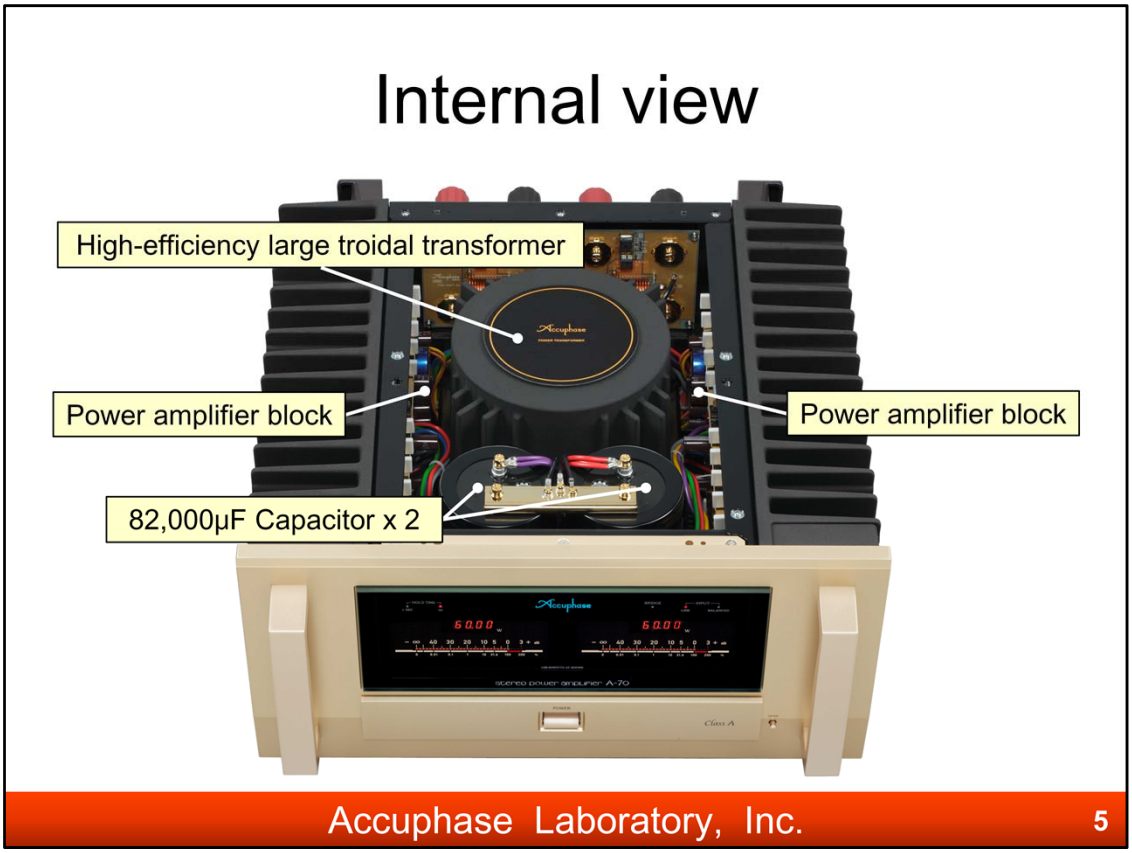


Accuphase Laboratory, Inc. 3

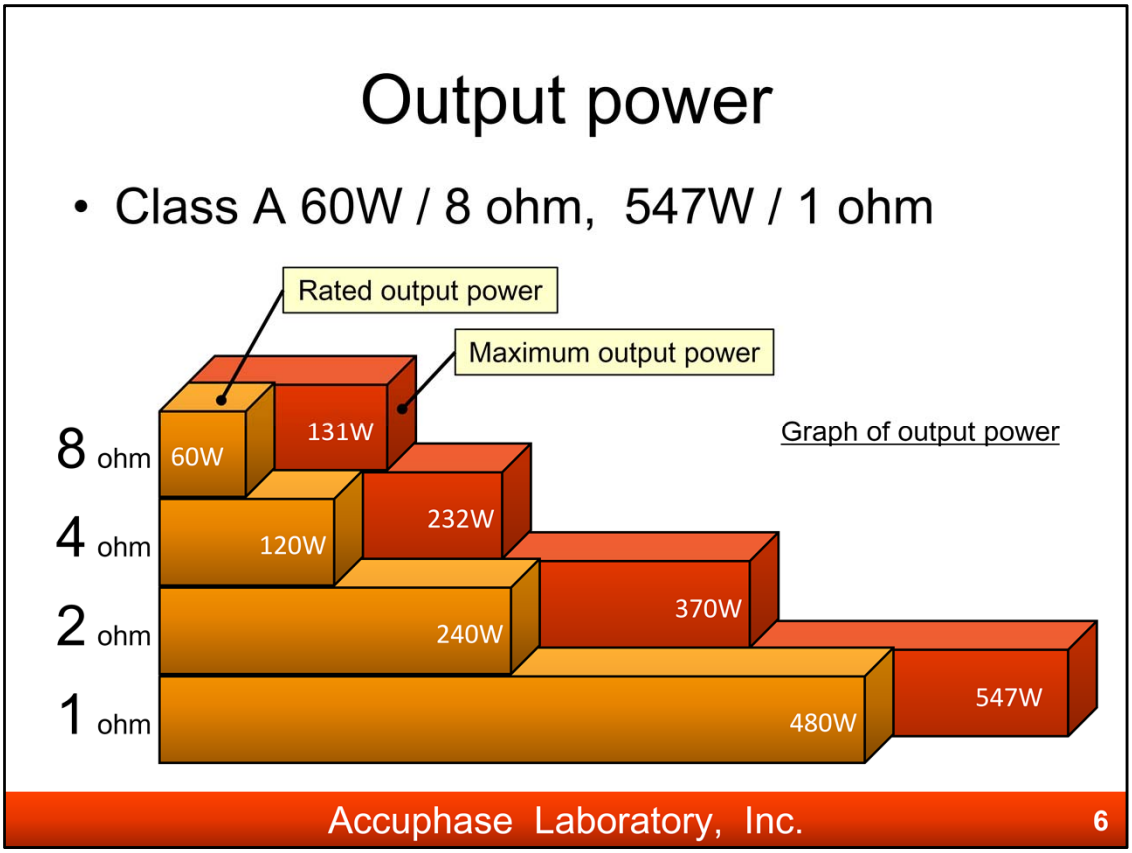
The chassis structure of A-70 was reinforced by 20mm x 15mm aluminum square bar on the front and back.



A-70 has digital power meters and 32-point LED bar graph indications.
Digital power meter shows true output power without any effect of speaker impedance.
2 pairs per channel of large speaker terminals are equipped.
They are useful for bi-wired connection with loud speakers.



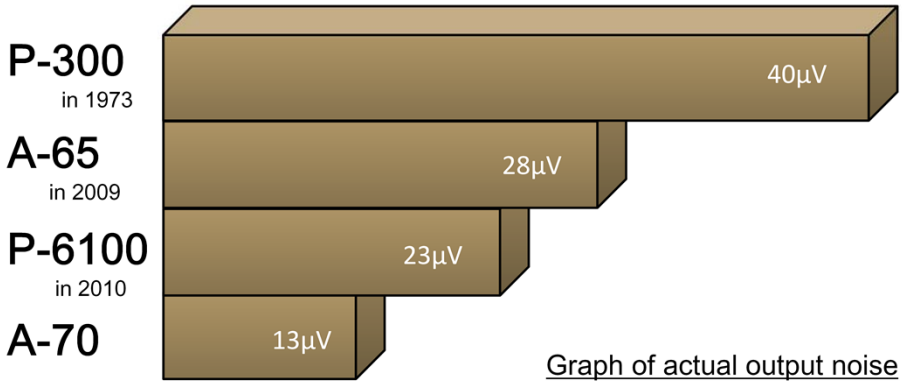
Strong power supply by large Troidal transformer with aluminum heat-radiation fins and 2 pieces of 82,000μF capacitor are installed.



The continuous average output power is 60W into 8 ohm load.
However A-70 has bigger headroom for maximum output power. It is 131W into 8 ohm and 547W into 1 ohm.
A-70 is the super high power amplifier.

Ultra Low Noise

- Lowest noise in Accuphase 41years stereo power amplifier history
  - S/N ratio 121dB guarantee / 124dB(13μV)typical



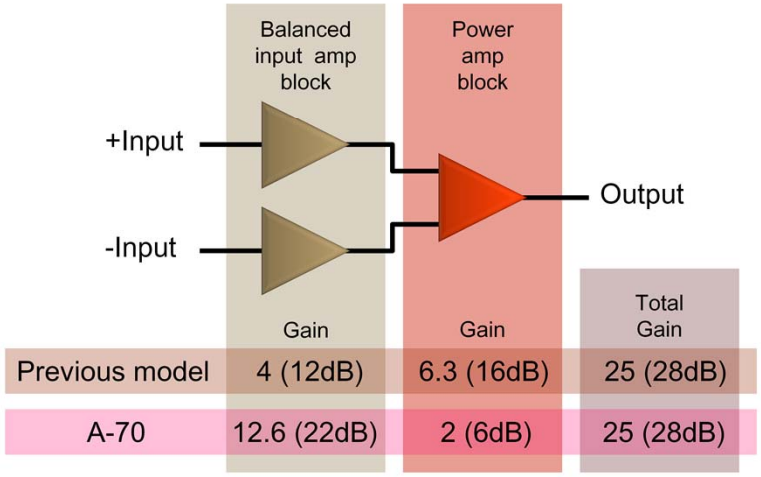
Graph of actual output noise

Accuphase Laboratory, Inc. 7

A-70 has the lowest noise performance in the 41 years' history of Accuphase stereo power amplifier.
Our first stereo power amplifier P-300 launched in 1973 has 40μV of noise voltage.
41 years later, A-70 achieves 13μV at last.
This is the half of the former model A-65.

Technology for low noise

- Optimized gain allocation
  - Output noise voltage is decreased to 33%



	Gain	Gain	Total Gain
Previous model	4 (12dB)	6.3 (16dB)	25 (28dB)
A-70	12.6 (22dB)	2 (6dB)	25 (28dB)

The output noise is reduced by some technologies.
Optimizing gain allocation of 2 amplifier blocks constructed with instrumentation amplifier.
Enhancing gain of balanced input amplifier block from 4 times to 12.6 times.
Output noise voltage is ideally decreased to 33%.

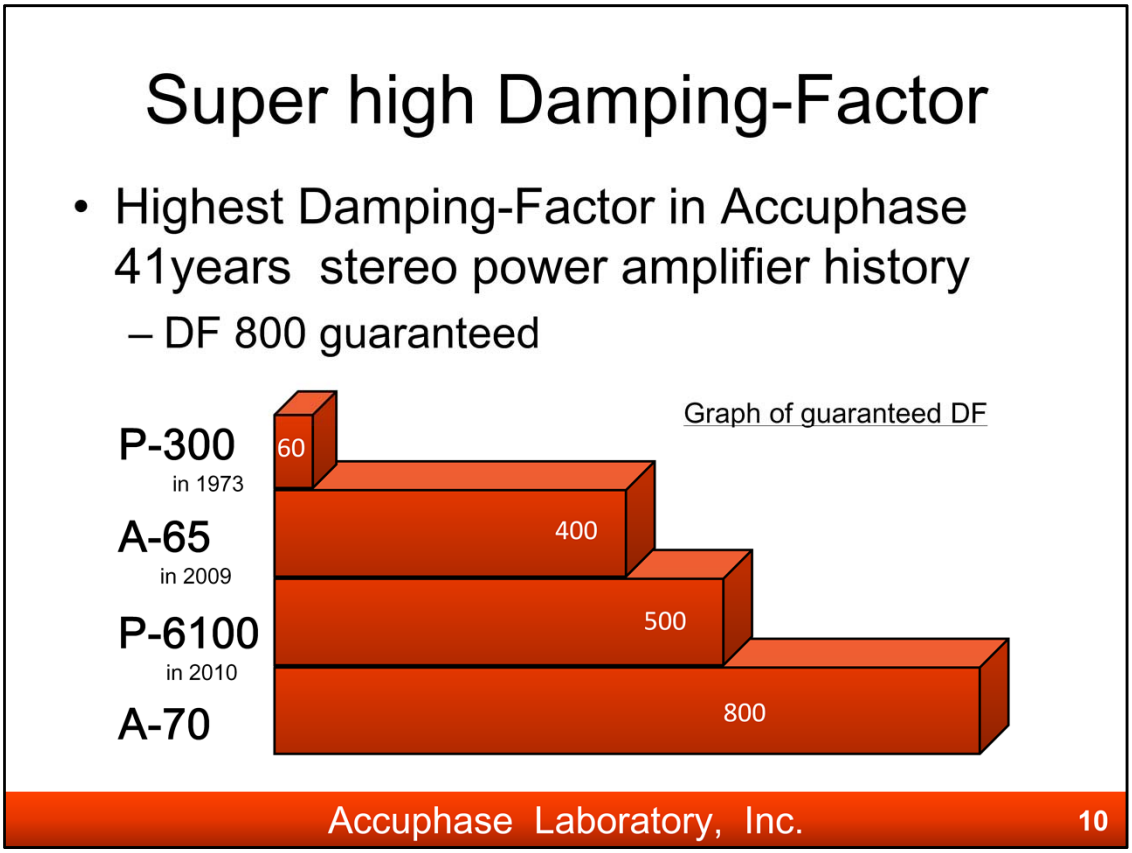
Technology for low noise

- Discrete configuration amplifier
  - Using low noise transistor in input stage

First stage balanced amplifier

Accuphase Laboratory, Inc. 9

The output noise is also reduced by the discrete configuration amplifier which IC is not installed on signal path.



A-70 has the highest Damping-Factor specification in the 41 years' history of Accuphase stereo power amplifier.
DF of P-300 in 1973 was 60.
After 41 years, A-70 achieves 800 of DF.
This is 2 times higher than the former model A-65.
This is guaranteed specification. In actuality A-70 has 1,000 of DF.

*Damping-Factor, DF:
A index of speaker driving ability. Higher Damping-Factor amplifier has higher speaker driving ability.
DF = 8 ohm / Output-impedance

Technology for high DF

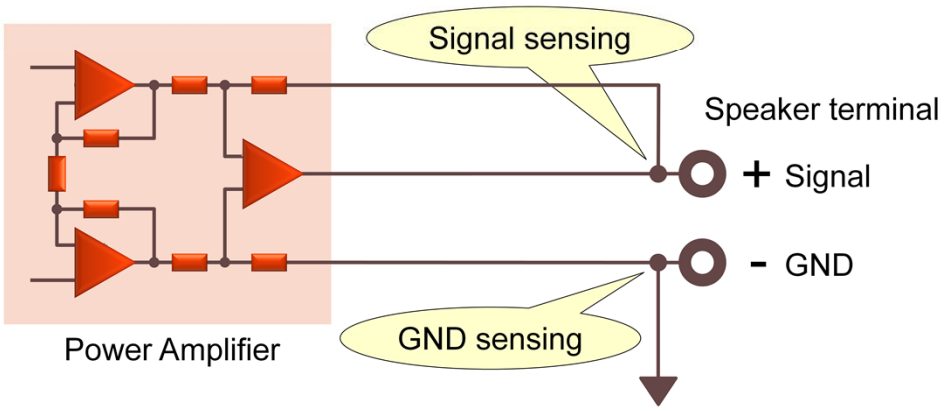
- Very low output impedance power amplifier engine
  - MOS-FET 10 parallel push-pull output stage

Power amp. Assembly

The Output impedance is decreased by 10 parallel push-pull output stage arrangement of MOS-FET.

Technology for high DF

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



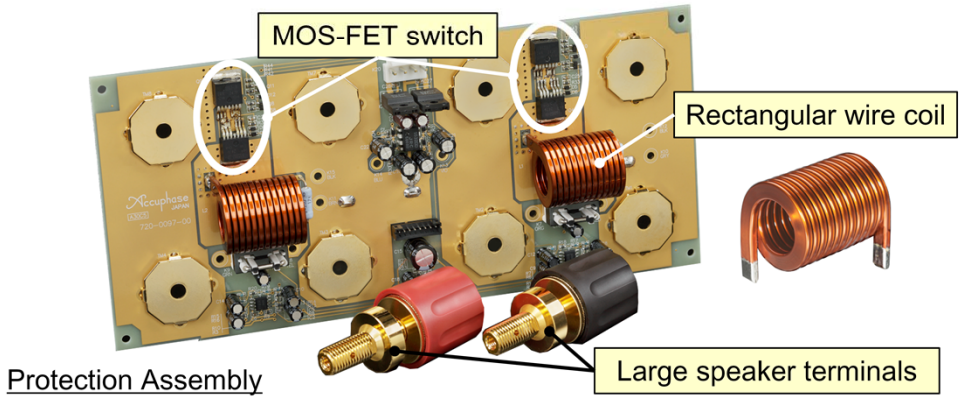
Remote-sensing is the technique to lower output impedance of amplifier by the negative feedback with signal sensing from close up the speaker terminals.

Balanced Remote-sensing is the technique to make impedance even lower by GND sensing and the negative feedback of GND level with adding the signal sensing.

Not only Damping-factor is improved but also Total Harmonic Distortion and Intermodulation Distortion get better by Balanced Remote-sensing.

Technology for high DF

- Speaker protection equipped with MOS-FET
- Using very low resistance components
- Short signal path configuration



Accuphase Laboratory, Inc. 13

Mechanical relay is the most common for speaker protection. It does not have good reliability and so lower contact resistance either.
A-70 employed MOS-FET switch instead of mechanical relay for speaker protection.
Damping-Factor, reliability and sound quality are improved thanks to MOS-FET switch.
Some other very low resistance components which are chosen for A-70 are large speaker terminal, rectangular wire coil and so on.
Making signal path thick and short attains having low impedance.