

# Accuphase

STEREO CONTROL CENTER

## C-2150

- AAVA volume control with newly developed ANCC feature
- Five line level and two balanced inputs for optimum flexibility
- Recorder connection support
- Logic-control relays for shortest signal paths
- Separate power supplies for left and right channels
- Fully modular construction with individual left / right amplifier units
- Phase selection function
- Tone controls
- Dedicated headphone amplifier
- Option board slots provide additional versatility for digital input handling and analog record playback





# Newly developed ANCC makes AAVA even better

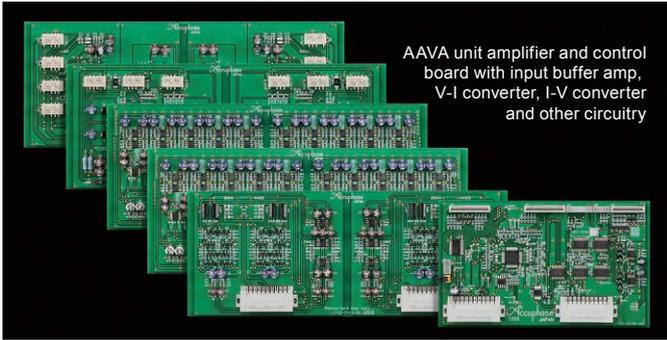
## The next-generation control center featuring latest technology.

The C-2150 for the first time combines a new topology called ANCC with the AAVA volume control principle. As a result, music reproduction is supple, elegant and full of transparency, with a spatial expression capability that makes one forget the presence of any volume control circuit. With a functionality level close to higher-end models and a versatile array of input and output terminals, plus the choice of adding option boards, the C-2150 provides fully immersive music enjoyment. This next-generation control center will satisfy even the most demanding music lover.

### Innovation - The leading edge of technology

#### ■ AAVA operation principle is purely analog

AAVA converts the music signal into 16 differently weighted current streams ( $1/2, 1/2^2, \dots, 1/2^{15}, 1/2^{16}$ ) which are combined according to the position of the volume control knob, resulting in exactly the desired listening level.

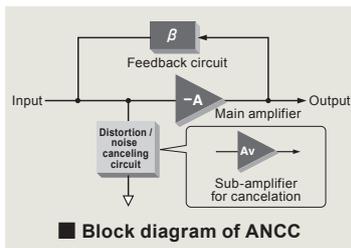


AAVA unit amplifier and control board with input buffer amp, V-I converter, I-V converter and other circuitry

#### ■ Drastic reduction of distortion and noise

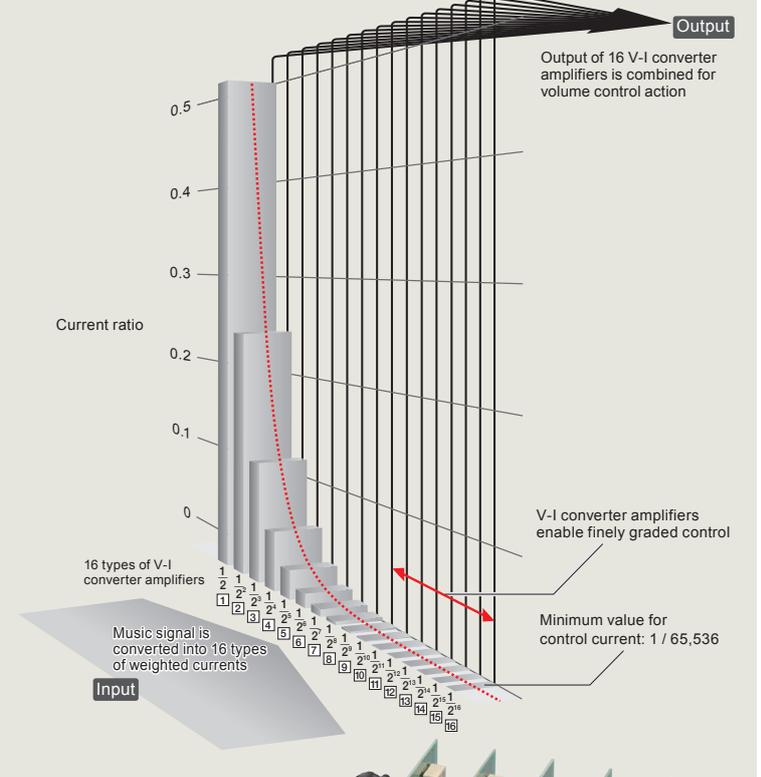
##### ANCC: Accuphase Noise and distortion Cancelling Circuit

The C-2150 uses ANCC topology for the I-V converter amplifier, balanced output amplifier, and headphone amplifier. This innovative topology adds a sub-amplifier for effectively canceling noise in the main amplifier circuit. The use of low-noise technology in the sub-amplifier (noise density:  $1.5 \text{ nV} / \sqrt{\text{Hz}}$ ) further enhances the benefits of ANCC. By incorporating ANCC in the I-V converter amplifier and the balanced amplifier of the AAVA section, a further drastic reduction in noise is achieved, especially at low to medium volume level positions.



■ Block diagram of ANCC

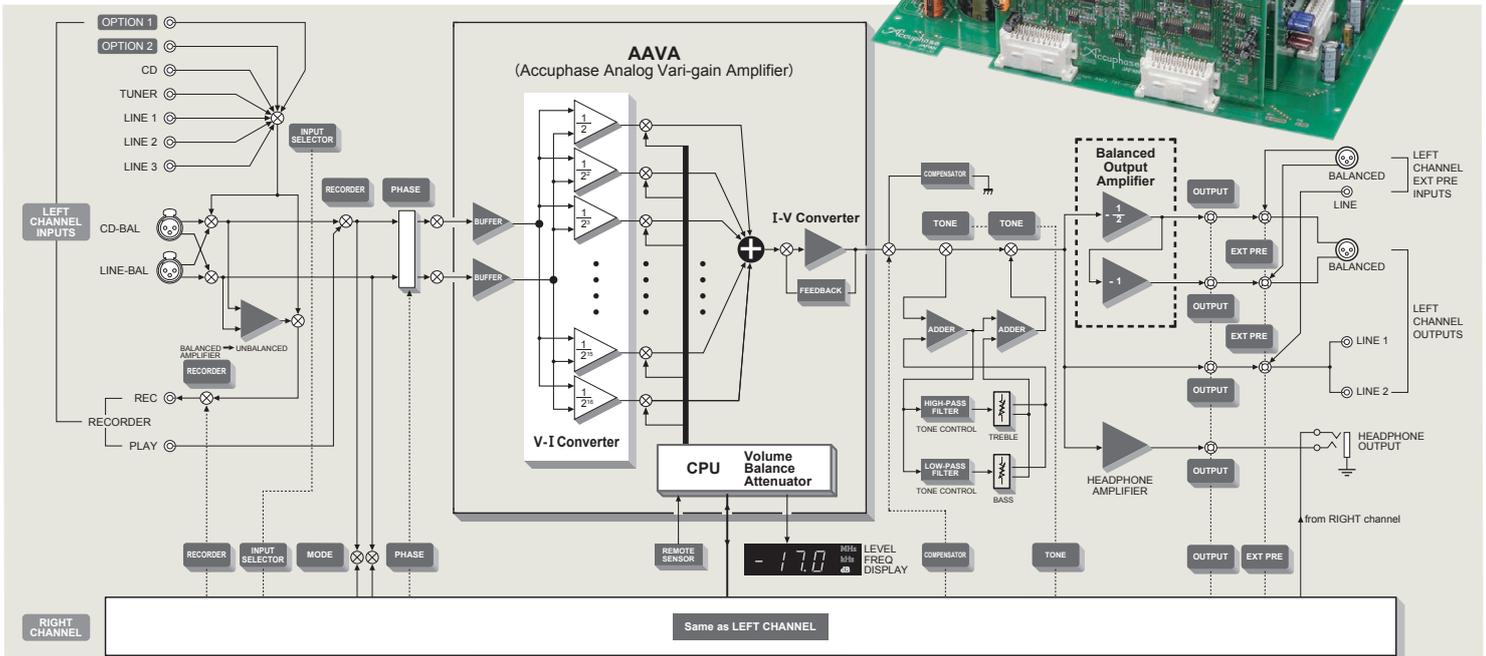
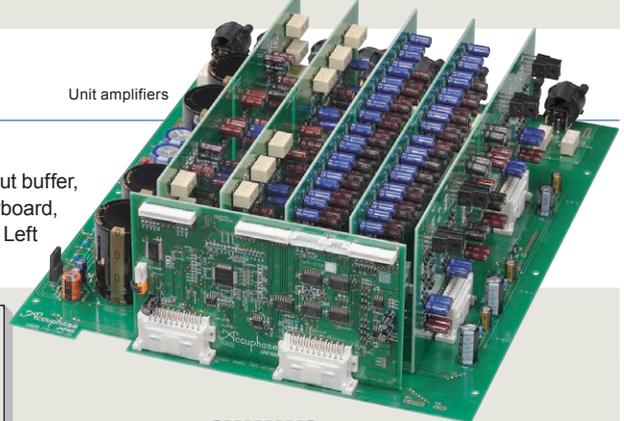
#### ■ How AAVA works



### High reliability

#### ■ Separate unit amplifiers for left and right

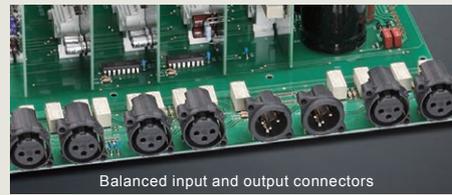
The C-2150 comprises five separate amplifiers: input buffer, V-I converter, I-V converter, output buffer, and headphone. These are configured as five separate circuit boards arranged on a motherboard, providing ample space for components and ensuring outstanding reliability and performance. Left and right channels are kept completely separate to prevent unwanted electrical interaction.



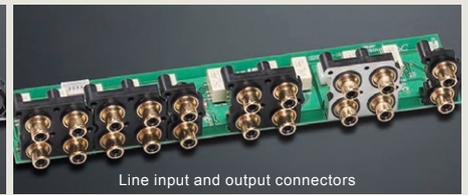
■ C-2150 Block Diagram

## Advanced features

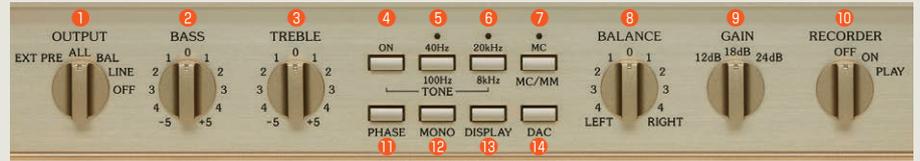
- Logic-control signal switching relays for shortest signal paths
- Five line level and two balanced inputs
- Line input and output connectors for a recorder
- EXT PRE function allows use of external pre-amplifier
- Individual phase setting for each input
- Stereo signal can be switched to monophonic operation
- Instrumentation amplifier principle for input buffer
- AAVA also adjusts left / right channel balance
- AAVA circuitry uses thin-film resistors to minimize thermal fluctuations and current noise
- Convenient attenuator is useful for example when operating an analog record player
- Loudness compensator enhances low end presence
- Tone controls using summing active filters
- Dedicated headphone amplifier using ANCC for optimum sound quality
- Separate power supplies for left and right channels prevent mutual interference
- Maximum gain can be set to 12 dB, 18 dB, or 24 dB
- Separate power supplies for left and right channels prevent mutual interference
- On / off switching capability for level / frequency display
- Champagne-gold front panel and high-gloss side panels
- Two option board installation slots
- DAC input selector button for use when digital input board (DAC-50 or DAC-40) is installed
- Numeric indication of digital signal sampling frequency (when DAC-50 or DAC-40) is installed)



Balanced input and output connectors



Line input and output connectors



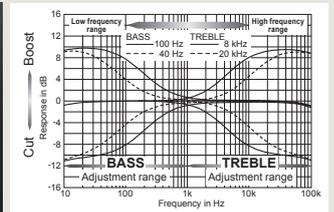
- Output selector for using an external preamplifier and switching the output
- Bass tone control knob
- Treble tone control knob
- Tone control on / off button
- Bass control frequency selector button
- Treble control frequency selector button
- MC / MM selector button for gain switching according to the phono cartridge type when AD-50, AD-30 or AD-20 is installed
- Left / right balance control knob
- Gain selector for overall system gain
- Recorder selector for function switching when a recorder is connected
- Phase selector button for input signal
- Mono / stereo selector button for combining left / right channel signals
- Display mode button for level / frequency display on / off and switching
- DAC input selector button for use when digital input board (DAC-50 or DAC-40) is installed



Separate power transformers for left and right



High-capacitance aluminum electrolytic capacitors



Tone control characteristics

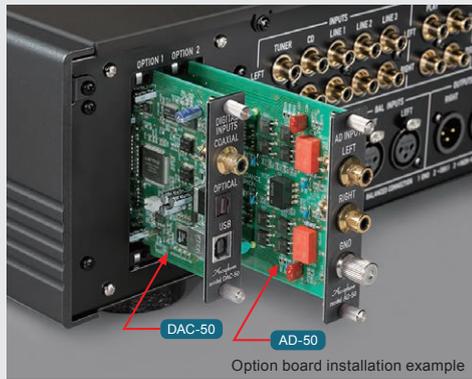


- Supplied Remote Commander RC-230  
Allows volume adjustment and input source switching.



## Option Boards

Up to two option boards can be inserted into dedicated slots on the rear panel. Three types of option boards are available.



Option board installation example

Older option board models are also supported

Digital Input Board	DAC-10 / DAC-20 / DAC-30 / DAC-40
Analog Disc Input Board	AD-9 / AD-10 / AD-20 / AD-30
Line Input Board	LINE-9

### Digital Input Board DAC-50

**High-performance DAC with two AK4490EQ chips from Asahi Kasei Microdevices driven in parallel.**

Coaxial digital cable  
Optical fiber cable  
USB cable

Digital component  
Computer

Input	Signal	Sampling frequency	Number of bits
USB	DSD	2.8224 MHz	1
		5.6448 MHz	
		11.2896 MHz *1	
Optical	PCM	32 to 384 kHz	32
		32 to 96 kHz	24
Coaxial	PCM	32 to 192 kHz	24

\*1 ASIO only

Input can be selected with a button on the front panel \*2

Sampling frequency display supported \*2

\*2 When DAC-40 / DAC-50 is used

### Analog Disc Input Board AD-50

**Features a high-performance phono equalizer for playback of analog records.**

- Supports MC and MM cartridges
- MC load impedance selector button
- Subsonic filter

Cartridge	MC	MM
Gain	66 dB	40 dB
Input impedance	30 ohms 100 ohms 300 ohms	47 kilohms
Subsonic filter	25 Hz: -12 dB / octave	

MC or MM can be selected with a button on the front panel \*3

\*3 With the AD-9 / AD-10, the setting is made on the board.

### Line Input Board LINE-10

Provides an additional set of unbalanced line level inputs.

## Front Panel

Input selector, BASS/TREBLE tone controls, MC/MM selector button, Function display, Volume control, Power switch, Opening sub panel, Output selector, Phase selector button, Mono / stereo selector button, Display mode selector button, DAC input selector button, Headphone jack, Attenuator button, Loudness compensator button, Button for opening sub panel, Recorder selector, Gain selector, Balance control.

## Rear Panel

Option board installation slots, Recorder connectors REC / PLAY, Line input connectors TUNER / CD / LINE 1, 2, 3, Line output connectors LINE 1, 2, External preamplifier (Line) input connectors EXT PRE INPUTS (LINE), Balanced input connectors CD-BAL / BAL, Balanced output connectors BAL, External preamplifier (Balanced) input connectors EXT PRE INPUTS (BAL), AC power supply connector \*.

With line input signal: Pin ② (-), Pin ③ (+)  
With balanced input signal: Same phase as input source component (Can be changed with phase selector button on front panel)

## C-2150 Guaranteed Specifications [Guaranteed specifications are measured according to EIA standard RS-490.] \* indicates values measured with AD-50 installed

Frequency Response	BALANCED / LINE INPUT:	3 - 200,000 Hz	+0 -3.0 dB
		20 - 20,000 Hz	+0 -0.2 dB
AD INPUT [MM/MC]*:		20 - 20,000 Hz	±0.3 dB

Total Harmonic Distortion (for all inputs) 0.005%

Input Sensitivity, Input Impedance	Input	Input sensitivity		Input impedance
		For rated output	For 0.5 V output	
BALANCED		252 mV	63 mV	40 kilohms (20 / 20 kilohms)
	LINE	252 mV	63 mV	
AD: MM / 40 dB*		2.5 mV	0.63 mV	47 kilohms
AD: MC / 66 dB*		0.126 mV	0.0315 mV	30 / 100 / 300 ohms (selectable)

Rated Output Voltage, Output Impedance	BALANCED / LINE OUTPUT:	2 V	50 ohms
	RECORDER REC (with AD input) *:	252 mV	200 ohms

S / N Ratio (Gain selector: 18 dB)	Input	Input shorted (A weighting)	S / N ratio (EIA)
		S / N ratio at rated output	
BALANCED		110 dB	108 dB
	LINE	110 dB	
AD: MM / 40 dB*		80 dB	86 dB
AD: MC / 66 dB*		68 dB	76 dB

Maximum Output Level (0.005% THD, 20 - 20,000 Hz)	BALANCED / LINE OUTPUT:	7.0 V
	RECORDER REC (with AD input) *:	6.0 V
Maximum Input Voltage	BALANCED / LINE INPUT:	6.0 V

Max. AD input voltage* (1 kHz, 0.005% THD)	MM / 40 dB INPUT:	60.0 mV
	MC / 66 dB INPUT:	3.0 mV

### 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.
- \* The 230 V version has an Eco Mode that switches power off after 120 minutes of inactivity.
- \* The shape of the plug of the supplied AC power cord depends on the voltage rating and destination country.

Supplied accessories
● AC power cord
● Audio cable with plugs AL-10
● Remote Commander RC-230

Minimum Load Impedance	BALANCED / LINE OUTPUT:	600 ohms
	RECORDER REC:	10 kilohms

Channel Separation -74 dB (10 kHz)

Gain (Gain selector: 18 dB)	BALANCED INPUT	→ BALANCED OUTPUT:	18 dB
	BALANCED INPUT	→ LINE OUTPUT:	18 dB
• With gain selector set to 12 dB, add -6 dB to all values at right	LINE INPUT	→ BALANCED OUTPUT:	18 dB
	LINE INPUT	→ LINE OUTPUT:	18 dB
• With gain selector set to 24 dB, add 6 dB to all values at right	AD [MM:40 dB] INPUT *	→ BALANCED / LINE OUTPUT:	58 dB
	AD [MM:40 dB] INPUT *	→ REC OUTPUT:	40 dB
	AD [MC:66 dB] INPUT *	→ BALANCED / LINE OUTPUT:	84 dB
	AD [MC:66 dB] INPUT *	→ REC OUTPUT:	66 dB

Tone Controls	Bass / Treble controls turnover frequencies and adjustment range		
	BASS:	40 / 100 Hz	±10 dB
	TREBLE:	8 / 20 kHz	±10 dB

Loudness Compensation +6 dB (100 Hz)

Subsonic Filter \* 25 Hz: -12 dB / octave

Attenuator -20 dB

Headphone Jack	Output level: 2 V (40 ohms), Suitable impedance: 8 ohms or higher
Power Requirements	120 / 220 / 230 V AC, 50 / 60 Hz (Voltage as indicated on rear panel)

Power Consumption 34 W

Maximum Dimensions	Width	465 mm (18.3")
	Height	150 mm (5.9")
	Depth	405 mm (15.9")

Mass	16.9 kg (37.0 lbs) net
	23.0 kg (50.7 lbs) in shipping carton

