Accuphase

PRECISION STEREO PREAMPLIFIER

C-2820

● "AAVA Volume Control" for high performance and outstanding sound ● Separate high-efficiency toroidal power transformers for left and right channels ● Selectable preamp gain ● Fully modular construction with separate left/right units for each amplifier stage ● Logic-controlled relays for shortest signal paths ● Independent phase selection for each input position ● Printed circuit boards made from glass cloth fluorocarbon resin ● Elegant cabinet with natural wood finish

Further refined AAVA volume control reaches new heights — A preamplifier for the next generation, featuring AAVA technology developed for the C-3800. Total of 16 unit amplifiers for left and right channels, using printed circuit boards made from glass cloth fluorocarbon resin. Dual-mono construction with separate high-efficiency toroidal transformers providing plenty of reserves. Optional phono equalizer unit allows playback of analog records with ultimate fidelity.

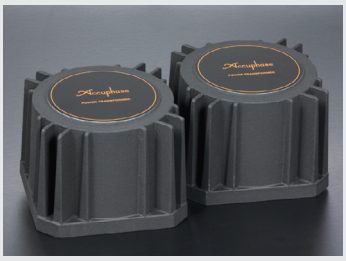
The top-of-the-line preamplifier C-3800 from Accuphase has received lavish praise from audio experts and music lovers the world over for its outstanding performance and sound quality. The C-2820 incorporates AAVA technology developed for the C-3800 and features strictly selected materials and parts. Its entire circuitry has been further refined and improved, making it a full model change from its predecessor C-2810.

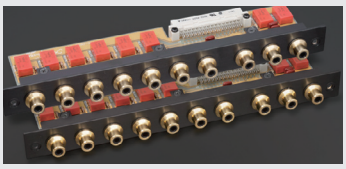
AAVA is fundamentally different from the digital signal processing approach involving A/D and D/A conversion. The volume control operates purely in the analog domain. Using AAVA to change the volume means that the high S/N ratio and low distortion of the amplifier remain totally unaffected. Frequency response and sound quality do not suffer at any listening level. There are no left/right tracking differences or crosstalk, and no other performance related degradations. The conventional concept of volume control in analog preamplifiers is well and truly a thing of the past. Another benefit of AAVA is the fact that it consists entirely of highly reliable semiconductor parts, so that performance and sound quality will remain undiminished for many years to come.

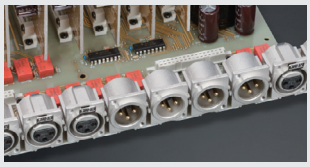
The C-2820 features separate power supplies for left and right channel, each with a dedicated high-efficiency toroidal power transformer and filtering capacitors. A total of 16 units for the line input, balanced input, AAVA, and other circuit stages are arranged separately for left and right channels on a mother board. This full mono construction eliminates any risk of unwanted electrical or mechanical interaction between the two stereo channels.

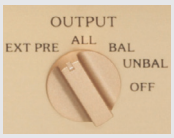
The printed circuit boards are an important element of a preamplifier both regarding electrical performance as well as sound quality. In the C-2820, these are made from glass cloth fluorocarbon resin with low dielectric constant and minimum loss. Loudness compensation, subsonic filter, and other important preamplifier features are covered, and all parts and materials used in this top-notch analog preamplifier have been carefully selected on the basis of sonic performance. The result is a product that ushers in a new era of preamplifier excellence.

- **Ideal full mono construction with amply dimensioned power supplies for left and right, employing high-efficiency toroidal transformers and high-quality filtering capacitors (10,000 µF x 4).**
- **Short and straight signal paths, along with logic-controlled relays for signal switching assure high sound quality and long-term reliability.**
- **Printed circuit boards in signal transmission circuitry made from glass fluorocarbon resin with low dielectric constant and low loss.**
- **Versatile arrangement of balanced and line input and output connectors (10 inputs, 5 outputs).**
- **EXT PRE function allows use of external preamplifier.**
- **Output phase selectable individually for each input, with visual indication. When INV LED is lit, output phase is inverted. When LED is out, phase is normal.**
- **Selectable preamplifier gain with three settings (12 dB, 18 dB, 24 dB) allows optimum matching to system requirements, including speaker efficiency.**
- **Dedicated headphone amplifier ensures great sound and features three selectable gain settings (LOW, MID, HIGH) for optimum matching to headphone efficiency.**
- **Massive cabinet with natural wood finish enhances the solid visual appeal of the unit.**
- **More versatile features:**
  - Provisions for recording and playback with a recorder
  - Three-stage loudness compensator enhances low end presence
  - Attenuator (-20 dB)
  - Subsonic filter
  - Alphanumeric indication of input position and volume level


High-efficiency toroidal transformers


Line input and output connectors

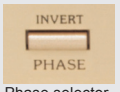

Balanced input and output connectors



"EXT PRE" selector

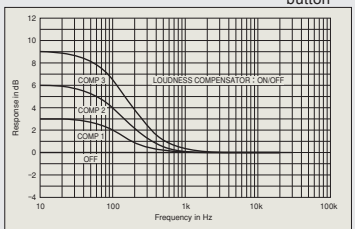
Gain selector

Headphone level selector

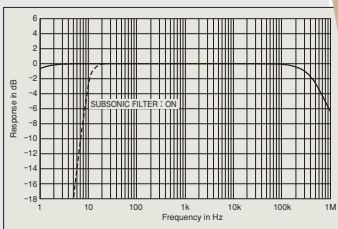


Phase selector button

LED indicators



Loudness compensator characteristics

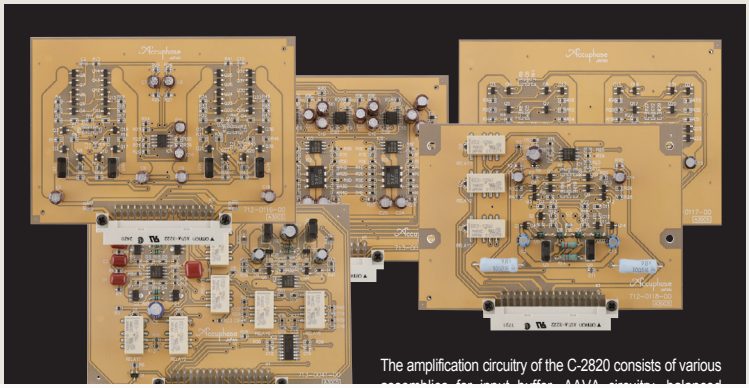


Frequency response/subsonic filter characteristics

Balanced AAVA (Accuphase Analog Vari-gain Amplifier) Volume Control

AAVA operation principle

The music signal is converted into 16 types of weighted current by V-I (voltage - current) converting amplifiers [1/2, $1/2^2$, ... $1/2^{15}$, $1/2^{16}$]. The 16 currents are turned on or off by 16 current switches, and the combination of switch settings determines the overall volume. The switching operation is controlled by a CPU to match the position of the volume control knob. The combined current forms a variable gain circuit that adjusts the volume of the music signal. The respective currents are combined and converted back into a voltage by an I-V (current - voltage) converter.


The amplification circuitry of the C-2820 consists of various

AAVA is a radically different volume control principle that resistors from the signal path, providing top-notch performance by changes in impedance, high signal-to-noise ratio and low

■18 V-I converter amplifiers, plus 4 buffer amplifiers in input stage for powerful drive capability

The AAVA input stage uses two buffers each for the inverted and non-inverted side of the balanced input, and 18 V-I amplifiers, with the amplifiers for the upper two bits being paralleled for further improved S/N ratio.

■Volume control resolution

AAVA adjusts the listening volume by means of 16 weighted V-I converter amplifiers which are controlled by current switches. The number of possible volume steps set by the combination of these converter amplifiers is 2 to the power of 16 = 65,536.

■AAVA ensures high S/N ratio, low distortion, and uniform frequency response and sound quality at any volume

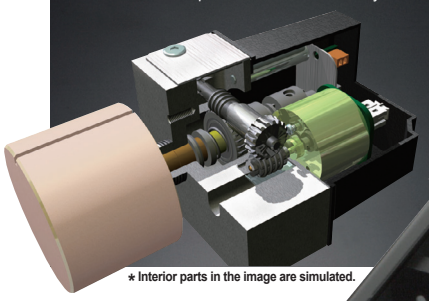
Because AAVA does not introduce a change in impedance, there is no deterioration of S/N ratio at any practical volume setting, and frequency response remains totally uniform. The sound is always perfectly transparent and the tonal quality is practically not altered.

■No more left/right tracking differences or crosstalk

Because the channels can be kept separate, there is virtually no left/right tracking

—Extruded from solid aluminum block—
High-rigidity volume sensor construction

Turning the volume knob on the front panel causes the actual volume level position to be detected. The corresponding signal is sent to a CPU which in turn controls the action of the AAVA circuitry. The massive knob provides a smooth operation feel and further enhances position detection accuracy.



* Interior parts in the image are simulated.

■ The unit amplifiers that handle the signal transmission are mounted on a motherboard, and left and right sections are kept completely separate. An 8 mm thick frame made of hard aluminum provides firm support and prevents mutual interference by electrical shielding and suppressing physical vibrations.

■ **Supplied remote commander RC-220**
Allows volume adjustment, input source switching, and other operations.

operates in the analog domain and eliminates all variable and sound quality. Because the music signal is not affected distortion are maintained at any volume control setting.

■AAVA means analog processing

The AAVA circuit converts the music signal from a voltage into a current, alters gain by means of current switches, and then reconverts the current into a voltage. The entire process is carried out in the analog domain.

■Amplifier display shows accurate gain

The selected volume level is clearly shown by the numeric display in the center of the front panel.

■Attenuator and left/right balance control also implemented by AAVA

Keeping the circuit configuration simple helps to maintain high performance and sonic purity.

■High performance and sound quality to last

AAVA unifies the amplifier and volume control functions, resulting in a circuit that is electrically very simple. Long-term reliability is excellent, with performance and sound quality that will remain unchanged also after prolonged use.

■Same operation feel as a conventional high-quality vo

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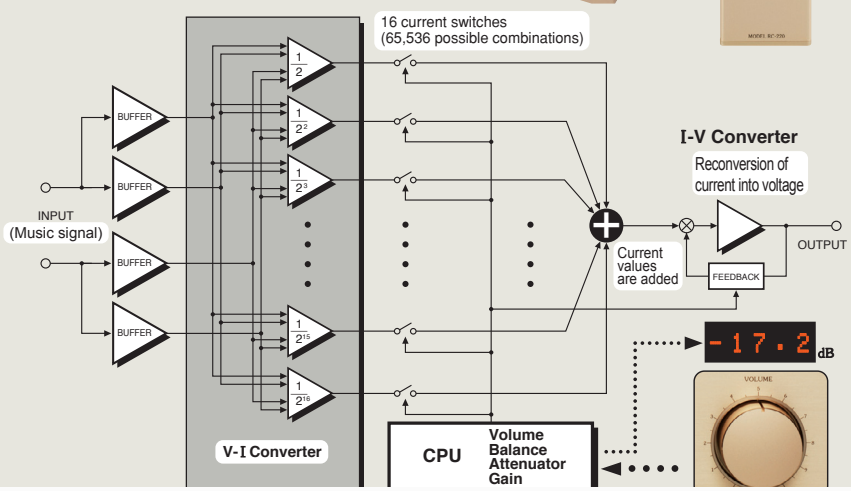
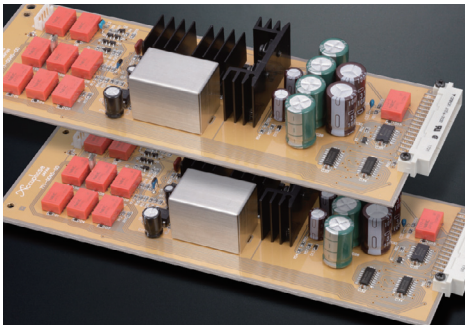
Operation principle of AAVA in C-2820



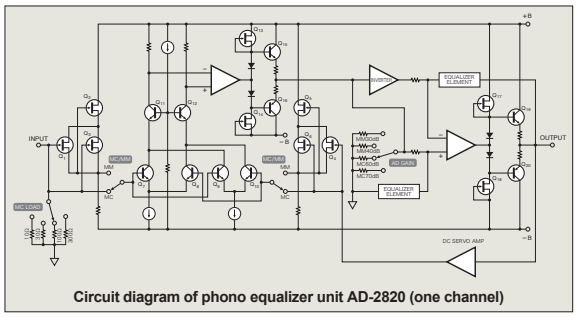
Dedicated Phono Equalizer Unit AD-2820



Analog records can be reproduced by installing the dedicated phono equalizer unit AD-2820 in a rear-panel slot. The AD-2820 features separate input circuitry for MC and MM cartridges to ensure optimum matching. Along with the balanced output stage configuration this minimizes noise and ensures highly pure playback.

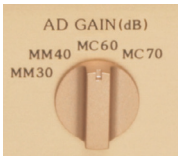
■MC
- Gain: 60/70 dB, switchable
- Input impedance: 10/30/100/300 ohms, switchable

■MM
- Gain: 30/40 dB, switchable
- Input impedance: 47 kilohms



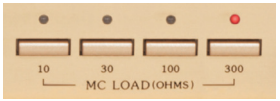
Circuit diagram of phono equalizer unit AD-2820 (one channel)

* For information regarding use in other preamplifier models (C-2810, C-2410 etc.), or regarding compatibility with previous phono equalizer units (AD-2810 etc.), please contact the Quality Assurance Department of Accuphase.



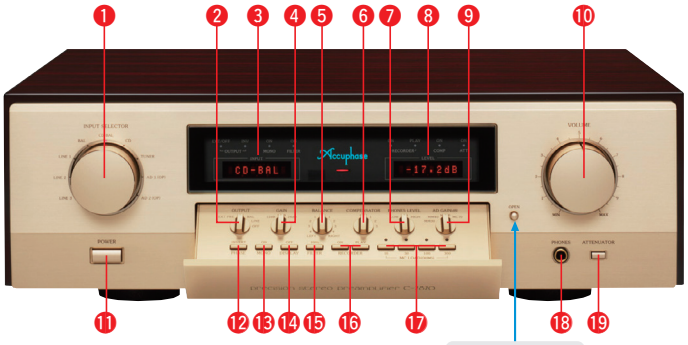
AD GAIN selector

■ Function setting controls on C-2820 front panel



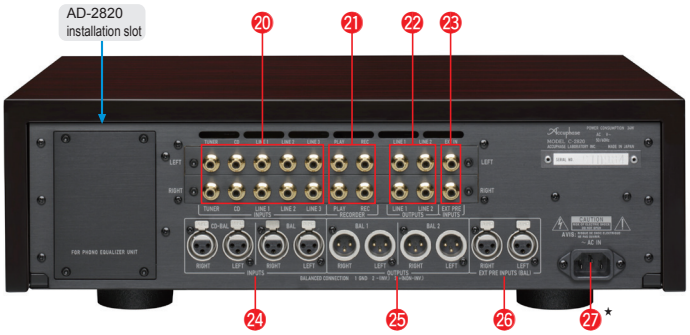
MC LOAD selector buttons

■Front panel



Pressing this button opens the sub panel

■Rear panel



❶ Input selector
LINE 3, LINE 2, LINE 1, BAL, CD-BAL, CD, TUNER, AD-1 (OP), AD-2 (OP)
❷ Output selector
EXT PRE, ALL, BAL, LINE, OFF
❸ Input display
❹ Gain selector 12 dB, 18 dB, 24 dB
❺ Balance control
❻ Loudness compensator selector OFF, 1, 2, 3
❼ Headphone level selector
LOW, MID, HIGH
❽ Volume level indicator
❾ AD gain selector
❿ Volume control knob
⓫ Power switch
⓬ Phase selector button
⓭ Stereo/mono selector button
⓮ Display on/off button
⓯ Subsonic filter
⓰ Recorder output on/off and play buttons
⓱ MC impedance selector buttons
⓲ Headphone jack

⓳ Attenuator button
⓴ Line input connectors
TUNER, CD, LINE 1, 2 ,3
㉑ Recorder playback/recording connectors
㉒ Line output connectors (2 sets)
㉓ EXT PRE input connectors
㉔ Balanced input connectors (2 sets)
CD-BAL, BAL
㉕ Balanced output connectors (2 sets)
With line input signal: ② negative (-), ③ positive (+)
With balanced input signal: same phase as source equipment
(Can be switched with phase selector button ⓬)
㉖ EXT PRE input connectors (balanced)
㉗ AC power supply connector (for supplied power cord) ★

■ Supplied Accessories

- **Power cord**
- **Audio cables with plugs (1 m)**
- **Remote commander RC-220**
- **Cleaning cloth**

C-2820 Guaranteed Specifications

* Guaranteed specifications are measured according to EIA standard RS-490.
* Gain selector set to 18 dB position

Frequency Response

BALANCED/LINE INPUT:	3 - 200,000 Hz	+0, -3.0 dB
	20 - 20,000 Hz	+0, -0.2 dB
AD INPUT (MM/40 dB, MC):	20 - 20,000 Hz	±0.2 dB
AD INPUT (MM/30 dB):	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	
AD-MM/30 dB INPUT	8.0 mV	2.0 mV	47 kilohms
AD-MM/40 dB INPUT	2.5 mV	0.63 mV	47 kilohms
AD-MC/60 dB INPUT	0.25 mV	0.063 mV	10/30/100/300 ohms, switchable
AD-MC/70 dB INPUT	0.08 mV	0.02 mV	10/30/100/300 ohms, switchable
BALANCED/LINE	252 mV	63 mV	40/20 kilohms, switchable

Rated Output Voltage, Output Impedance

BALANCED/LINE OUTPUT	2 V	50 ohms
RECORDER REC (with AD input)	252 mV	200 ohms

Signal-to-Noise Ratio

Input	Input shorted (A weighting) S/N ratio at rated output	EIA S/N
AD-MM/30 dB INPUT	94 dB	86 dB
AD-MM/40 dB INPUT	85 dB	86 dB
AD-MC/60 dB INPUT	80 dB	86 dB
AD-MC/70 dB INPUT	73 dB	87 dB
BALANCED/LINE	111 dB	110 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 Level BALANCED/LINE INPUT: 6.0 V

Maximum AD Input Level (1 kHz, 0.005% THD)

MM [30/40 dB] INPUT:	310/96.5 mV
MC [60/70 dB] INPUT:	9.5/3.2 mV

Minimum Load Impedance

BALANCED/LINE OUTPUT:	600 ohms
RECORDER REC:	10 kilohms

Gain (gain selector: 18 dB) Gain selector allows 12/18/24 dB setting

BALANCED/LINE INPUT → BALANCED/LINE OUTPUT:		18 dB
LINE INPUT → REC OUTPUT:		0 dB
AD [MM:30/40dB] INPUT → BALANCED/LINE OUTPUT:		48/58 dB
AD [MM:30/40dB] INPUT → REC OUTPUT:		30/40 dB
AD [MC:60/70dB] INPUT → BALANCED/LINE OUTPUT:		78/88 dB
AD [MC:60/70dB] INPUT → REC OUTPUT:		60/70 dB

Loudness Compensation 1: +2 dB (100 Hz), 2: +4 dB (100 Hz), 3: +6.5 dB (100 Hz)

Headphone Jack Output Level: 2 V (40 ohms)
Suitable impedance: 8 ohms or above
Gain (LOW, MID, HIGH): ±10 dB from standard MID level

Subsonic Filter 10 Hz: -18 dB/octave

Attenuator −20 dB

Power Requirements AC 120 V/220 V/230 V 50/60 Hz (Voltage as indicated on rear panel)

Power Consumption 34 watts

Maximum Dimensions Width 477 mm (18-3/4") Height 156 mm (6-1/8") Depth 412 mm (16-1/4")
(Depth 414 mm with AD-2820 installed)

Mass 23.7 kg (52.3 lbs) net (24.6 kg (54.2 lbs) with AD-2820 installed)
31.0 kg (68.3 lbs) in shipping carton

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 shape of the AC inlet and plug of the supplied power cord depends on the voltage rating and destination country.*