

Accuphase

PRECISION STEREO PREAMPLIFIER

C-2810

- Revolutionary AAVA volume control
- Fully modular construction with individual left/right amplifier units
- Separate R-toroidal power transformers for left and right channels
- Selectable preamp gain
- Printed circuit boards made from Teflon material
- Logic-controlled relays for shortest signal paths
- Optional support for analog record playback
- Massive cabinet made of persimmons wood





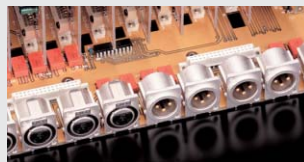
Meet the new flagship model – Preamplifier with further improved revolutionary AAVA volume control. Complete dual mono construction with two R-toroidal power transformers. Modular amplifiers using printed circuit boards made from Teflon. Independent phase selection for each input position. Phono Equalizer Unit allowing high-quality playback of analog records.

The C-2810 inherits the superb design technology of the C-2800 but takes another significant step forward. The new model employs only top-quality parts selected after extended listening tests and features a further improved AAVA (Accuphase Analog Vari-gain Amplifier) volume control. How a preamplifier handles listening level adjustment has a decisive influence on its performance and sound. AAVA is an innovative concept that differs radically from conventional variable-resistor type volume controls. In AAVA, amplification and volume control are fully unified, eliminating all mechanical contact points. Pure analog processing ensures optimum performance and superb sound. Another benefit of AAVA is that its performance and sound quality will remain undiminished for many years to come.

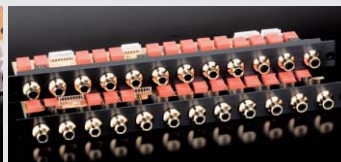
The power supply section of the C-2810 employs two separate R-toroidal transformers, one for each channel. Filtering capacitors and all other parts of the power supply are also duplicated for left and right. What's more, all unit amplifiers such as for input buffer, AAVA, and balanced output are also entirely separate for the two channels, arranged on a high-quality motherboard. This fully monaural construction prevents unwanted crosstalk and interaction both on the electrical and the physical plane. The result is utterly stable playback sound of impeccable quality. Logic relay control is used for source switching to implement the shortest possible signal paths. Each input position allows individual phase selection. The printed circuit boards are an important element of a preamplifier both regarding electrical performance as well as sound quality. In the C-2810, these are made from a Teflon material with low dielectric constant and minimum loss. Every aspect of this top-notch analog preamplifier has been honed for optimum sonic performance. The overall result is a flagship product that represents the best that Accuphase has to offer.

■ Logic-controlled relays assure high sound quality and long-term reliability

The strategically placed relays of the C-2810 prevent any signal degradation that could occur if the signal has to travel a long way for input and output connection and function switching. Optimum signal flow is maintained at all times.



Balanced inputs and outputs



Unbalanced inputs and outputs

■ Ideal power supply uses "R-toroidal transformers" in fully monaural configuration

Each transformer is housed in a dual-wall enclosure with a glass fiber core and strong resin coating. In addition, epoxy filler with superior vibration-damping and insulation characteristics is used, resulting in highly effective triple insulation.



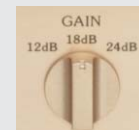
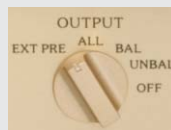
R-toroidal transformer

■ Printed circuit boards in signal transmission circuitry made from Teflon (glass fluorocarbon resin substrate) with low dielectric constant and low loss

* Teflon is a registered trademark of DuPont USA.

■ Selectable preamp gain

The overall gain of the preamplifier can be set to 12 dB, 18 dB, or 24 dB. (Standard position is 18 dB.)



Gain selector

■ EXT PRE function allows use of external preamplifier

■ Independent phase selection for each input position

The selected phase setting is memorized for each input position separately. The on/off status of a LED indicator shows the respective setting.



EXT PRE function and phase selector button, with LED indicators

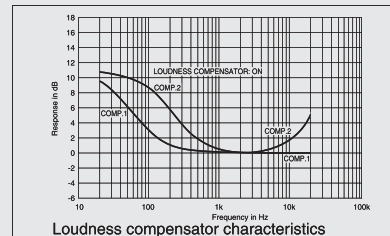
■ Versatile input and output connectors (inputs shown as character display)

■ Dedicated headphone amplifier optimized for sound quality

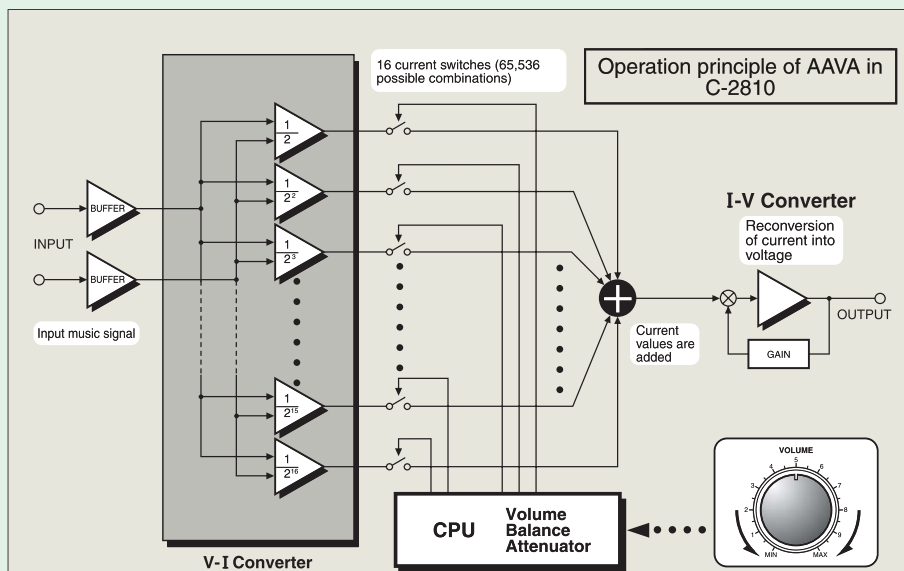
■ Versatile features:

- Provisions for recording/playback/copying with two recorders
- Loudness compensator augments bass and treble at low listening volume
- Attenuator
- Subsonic filter removes ultra low frequency noise

■ Massive cabinet made of persimmons wood



AAVA (Accuphase Analog Vari-gain Amplifier) volume control



AAVA is a radically different volume control principle that does not use variable resistors and provides top-notch performance and sound quality. Because the music signal does not pass through variable resistors, it is not affected by changes in impedance. This means that high signal-to-noise ratio and low distortion of the signal are maintained at any volume control setting.

■ AAVA 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 and uniform frequency response

With conventional volume controls, the impedance increases significantly at settings that correspond to normal listening levels, thereby leading to increased noise. With AAVA, there is no change in impedance and consequently no deterioration of S/N ratio. Frequency response also remains totally uniform. Changing the volume with AAVA does not mean introducing noise or detracting from the high performance of the amplifier.

■ No more left/right tracking differences or crosstalk

Because AAVA is an electronic circuit employing fixed-value

Input/volume level character display <Display can be turned off>

Input display examples

Positions selected with the input selector and recorder selector are shown as text.

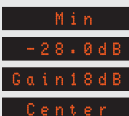
- CD playback
- Tuner playback
- Analog record playback (with AD-2810 installed)
- * Recorder playback



Level display examples

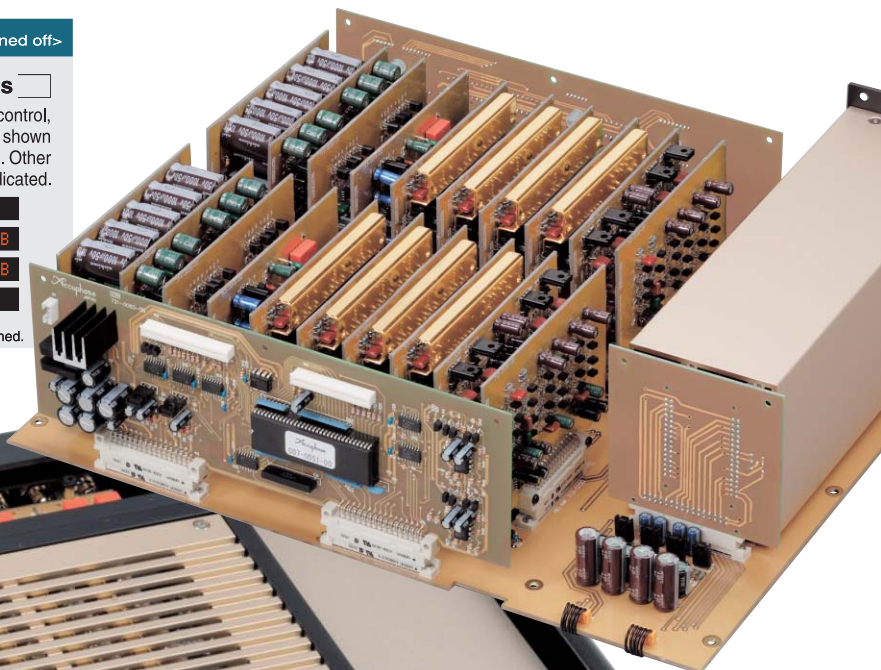
When the user operates the volume control, the attenuation of the preamplifier is shown as an accurate decibel (dB) indication. Other function switching actions are also indicated.

- Volume control at minimum
- Numeric indication of volume setting
- * GAIN selector (18 dB)
- * Balance control centered



* These indications appear for 4 seconds when the respective function is switched.

- The C-2810 contains a total of 20 unit amplifiers for the amplification circuitry and power supply. The printed circuit boards employ Teflon, and copper surfaces are gold-plated. The units are completely separate for left and right channel and housed in solid enclosures made of sturdy 8-mm thick aluminum. This prevents mutual interference both in the electrical and mechanical plane.



● C-2810 with optional Phono Equalizer Unit AD-2810 installed



- Supplied remote commander RC-200 provides access to volume control, input source selection, and other functions.



Simple circuit configuration

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.

AAVA means analog processing

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

Same operation feel as a conventional high-quality volume control

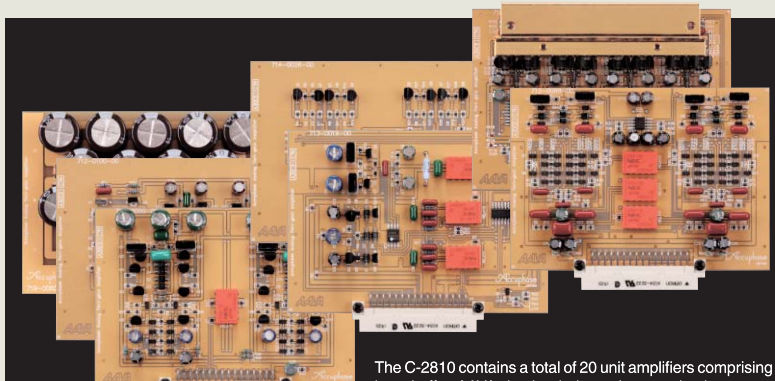
The volume control knob position is detected by a dedicated CPU which in turn selects the current switches for AAVA operation. Operating the knob therefore feels exactly the same as with a conventional control, and as before, operation via the remote commander is also possible.

Attenuator and balance control also implemented by AAVA

The functions of the attenuator and the left/right balance control are

AAVA operation principle

The music signal is converted into 16 types of weighted current by V-I (voltage – current) converting amplifiers $[1/2, 1/2^2, \dots, 1/2^{15}, 1/2^{16}]$. 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 according to the position of the volume control knob. The combined signal current forms a variable gain circuit that adjusts the volume. Finally, the combined current is converted back into a voltage by an I-V (current – voltage) converter.

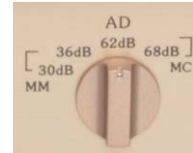
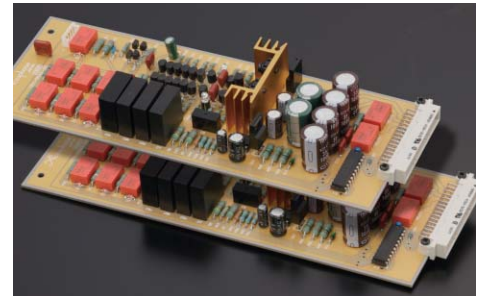
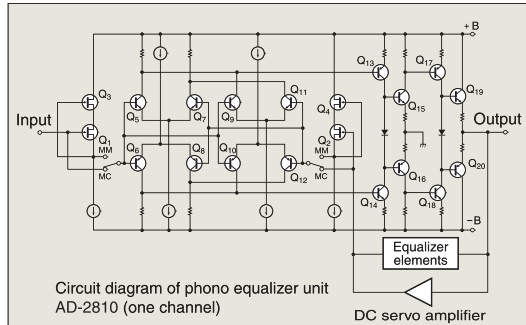


The C-2810 contains a total of 20 unit amplifiers comprising

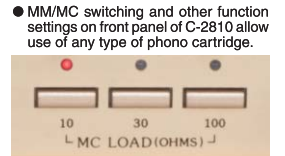
Dedicated Phono Equalizer Unit AD-2810

Analog records can be reproduced by installing the dedicated phono equalizer unit AD-2810 in a rear-panel slot. The AD-2810 uses printed circuit boards made from Teflon material (glass fluorocarbon resin substrate) and is housed in a sturdy aluminum case for complete protection against any external interference. The shortest possible connection between input and amplification circuits ensures outstanding S/N ratio, and highly reliable DIN connectors are used for the link to the main unit.

- * The AD-2810 can also be used in the Accuphase models C-2800, C-2410, C-2400, C-290 and C-290V.
- * The AD-290/AD-290V and AD-2800 are also compatible and can be used in place of the AD-2810.

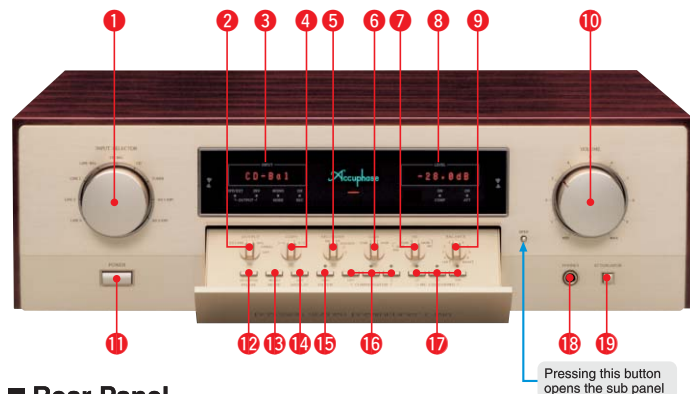


AD gain selector

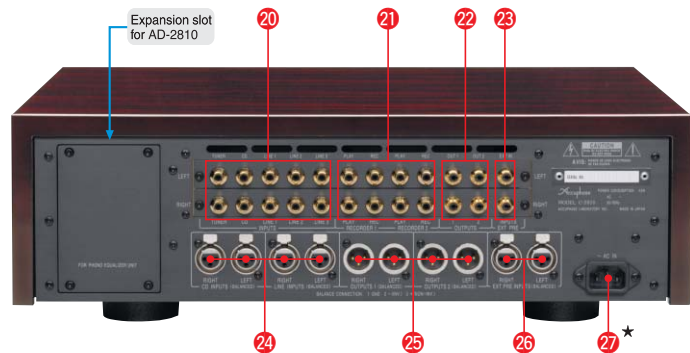


MC LOAD selector buttons

Front Panel



Rear Panel



- Input selector
LINE 3 LINE 2 LINE 1 LINE-BAL CD-BAL
CD TUNER AD-1 (OP) AD-2 (OP)
- Output selector
EXT PRE ALL BAL UNBAL OFF
- Input display
- Copy selector 1→2 OFF 2→1
- Recorder selector
REC OFF SOURCE 1 2
- Gain selector 12dB 18dB 24dB
- AD gain selector
- Level display
- Balance control
- Volume control
- Power switch
- Phase selector button
- Stereo/mono selector button
- Display on/off button
- Subsonic filter
- Loudness compensator selector
OFF 1 2
- MC impedance selector button
- Headphone jack
- Attenuator button
- Line input connectors
- TUNER CD LINE1, 2, 3
- Recorder playback/recording connectors
- Unbalanced output connectors (2 sets)
- External preamplifier input connectors (unbalanced)
- CD/LINE balanced input connectors
① Ground ② Inverted (-)
③ Non-inverted (+)
- Balanced output connectors (2 sets)
- External preamplifier input connectors (balanced)
- AC power supply connector*

Remarks:

- * This product is available in versions for 120/230 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.

Supplied accessories:

- AC power cord
- Audio cables with RCA-type plugs (1 m)
- Remote Commander RC-2000

C-2810 Guaranteed Specifications

- * Guaranteed specifications are measured according to EIA standard RS-490. AD stands for "Analog Disc".
- * Specifications are shown for phono equalizer unit AD-2810 installed.

- **Frequency Response** BALANCED/UNBALANCED INPUT 3 - 200,000 Hz +0, -3.0 dB
20 - 20,000 Hz +0, -0.2 dB
AD INPUT [MM/36 dB, MC] 20 - 20,000 Hz ±0.2 dB
AD INPUT [MM/30 dB] 20 - 20,000 Hz ±0.3 dB

- **Total Harmonic Distortion** 0.005% (for all inputs)

- **Input Sensitivity, Input Impedance**

Input	Sensitivity		Input impedance
	For rated output	For 0.5 V output	
AD:MM/30dB	8.0 mV	2.0 mV	47 kΩ
AD:MM/36dB	4.0 mV	1.0 mV	47 kΩ
AD:MC/62dB	0.2 mV	0.05 mV	10/30/100 Ω, switchable
AD:MC/68dB	0.1 mV	0.025 mV	10/30/100 Ω, switchable
BALANCED/UNBALANCED	252 mV	63 mV	40 kΩ/20 kΩ

- **Rated Output Voltage, Output Impedance** BALANCED/UNBALANCED OUTPUT: 2 V, 50 Ω
REC (with AD input): 252 mV, 200 Ω

- **S/N Ratio** (gain selector: 18 dB)

Input	Input shorted, IHF-A weighting	S/N ratio (EIA)
	S/N ratio at rated output	
AD:MM/30dB	95 dB	91 dB
AD:MM/36dB	89 dB	92 dB
AD:MC/62dB	80 dB	87.5 dB
AD:MC/68dB	75 dB	88.5 dB
BALANCED/UNBALANCED	111 dB	110 dB

- **Maximum Output Level** BALANCED/UNBALANCED OUTPUT: 7.0 V
REC (with AD input): 6.0 V

- **LINE maximum input level** BALANCED/UNBALANCED INPUT: 6.0 V

- **Maximum AD Input Level** (0.005% THD) MM [30/36 dB] INPUT: 300 mV/150 mV
MC [62/68 dB] INPUT: 7.5 mV/3.75 mV

- **Minimum Load Impedance** BALANCED/UNBALANCED OUTPUT: 600 Ω
REC: 10 kΩ

- **Gain** (gain selector: 18 dB) BALANCED/UNBALANCED INPUT → BALANCED/UNBALANCED OUTPUT: 18 dB
Gain can be set to 12/18/24 dB
UNBALANCED INPUT → REC OUTPUT: 0 dB
AD [MM: 30/36 dB] INPUT → BALANCED/UNBALANCED OUTPUT: 48/54 dB
AD [MC: 30/36 dB] INPUT → REC OUTPUT: 30/36 dB
AD [MC: 62/68 dB] INPUT → BALANCED/UNBALANCED OUTPUT: 80/86 dB
AD [MC: 62/68 dB] INPUT → REC OUTPUT: 62/68 dB

- **Loudness Compensation** 1: +3 dB (100 Hz) 2: +8 dB (100 Hz) +6 dB (20 kHz)

- **Subsonic Filter** 10 Hz: -18 dB/octave

- **Attenuator** -20 dB

- **Headphone Jack** Suitable impedance: 8 - 100 Ω

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

- **Power Consumption** 43 watts

- **Maximum Dimensions** Width: 477 mm (18-3/4")
Height: 156 mm (6-1/8")
Depth: 412 mm (16-1/4")
(Depth with AD-2810 installed: 414 mm)

- **Mass** 21.6 kg (47.6 lbs) net (22.5 kg with AD-2810 installed)
28.0 kg (61.7 lbs) in shipping carton

