

Accuphase

PRECISION STEREO PREAMPLIFIER

C-2800

- Revolutionary AAVA volume control
- Printed circuit boards using Teflon base with low dielectric constant and low loss
- Separate R-toroidal transformers for left and right channels
- Fully modular construction with individual amplifier units for each stage
- Logic-controlled relays for shortest signal paths
- Optional analog record playback capability
- Massive cabinet of natural persimmons wood





The analog preamplifier has just been redefined — Revolutionary AAVA type volume control. Fully modular construction with Teflon-based printed circuit boards. Dual mono configuration with separate R-toroidal transformers for left and right channels. Optional dedicated phono equalizer unit allows analog record reproduction with superb fidelity.

The two most basic tasks of a preamplifier are selecting the input source and adjusting the volume. How the volume adjustment is achieved has a significant bearing on sound quality. The C-2800 introduces a novel concept called AAVA (Accuphase Analog Vari-gain Amplifier). This circuit differs radically from conventional variable-resistor type volume controls. Amplification and volume control are fully unified, eliminating all mechanical contact points. Pure analog processing ensures optimum performance and superb sound. Doing away with the variable resistor in the signal path has numerous advantages and

brings the amplifier a significant step closer to absolute purity in signal transmission.

The power transformer, filtering capacitors and all other parts of the power supply are duplicated for the left and right channel. What's more, all unit amplifiers such as for line input, balanced output, and AAVA 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. The printed circuit boards are an important element of a preamplifier both regarding electrical performance as well as sound quality. In the C-2800, these are made from a Teflon material (glass fluorocarbon resin) with low dielectric constant and minimum loss. Each and every part used in this top-notch analog preamplifier has been carefully selected on the basis of sonic performance. The overall result is a flagship product that represents the best that Accuphase has to offer.

* Teflon is a registered trademark of DuPont USA.

AAVA (Accuphase Analog Vari-gain Amplifier) volume control

The newly developed volume control called AAVA (Accuphase Analog Vari-gain Amplifier) is totally different from conventional controls using resistors. It allows precise listening level adjustment while maintaining top-notch performance and sound quality over the entire range. 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. Internally, a dedicated CPU selects the current switches that determine the gain of the amplifier. With regard to the music signal, the AAVA circuit is a fully analog volume control.

■ AAVA operation principle

AAVA operates by feeding the music signal to a V-I (voltage - current) converter where it is weighted in 16 steps [$1/2$, $1/2^2$, ..., $1/2^{15}$, $1/2^{16}$]. The 16 current steps 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 volume. Finally, the combined current is converted back into a voltage by an I-V (current - voltage) converter.

■ AAVA resolution

AAVA adjusts the listening volume by means of 16 current switches. The number of possible volume steps set by the combination of these switches is 2 to the power of 16 = 65,536. When maximum output voltage is 5 V, resolution is an amazing 0.07 mV.

■ Minimal distortion and no thermal noise

Because AAVA is an electronic circuit, the music signal does not pass through any variable resistors. Thermal noise caused by resistors is totally absent. Because there is no impedance that affects the signal, S/N ratio remains at the logical optimum. The circuit configuration also assures ultra-low distortion.

■ Simple circuit configuration

AAVA unifies the amplifier and volume control functions, resulting in a circuit that is electrically very simple. Right and left channels are fully independent, and frequency response does not change regardless of the volume control knob position. Channel separation is excellent, and sonic performance remains totally uniform over the entire range.

■ 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.

■ Same operation feel as a conventional high-quality volume control

The actual volume control knob is linked to a variable resistor. However, this resistor is only used to detect the absolute position of the knob. Operating the control therefore feels exactly the same as with a conventional control, and operation via the remote commander is also possible.

■ Attenuator and balance control also realized via AAVA

The functions of the attenuator and the left/right balance control are covered by the AAVA circuit as well, eliminating the need for additional stages. Keeping the configuration simple helps to maintain high performance and sonic purity.

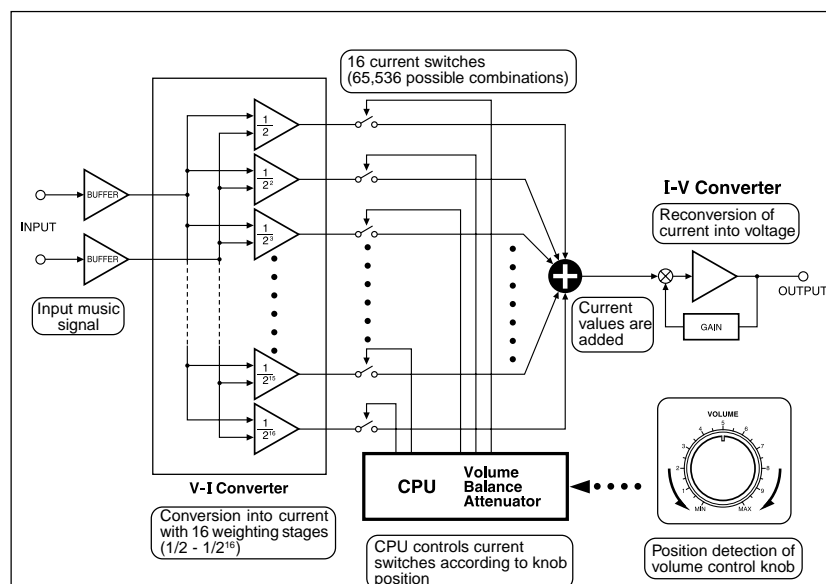
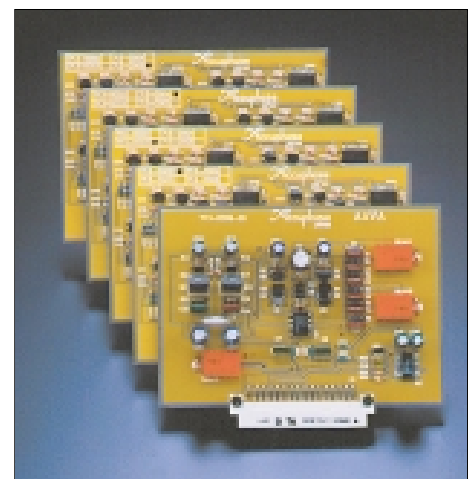


Fig. 1 AAVA Principle



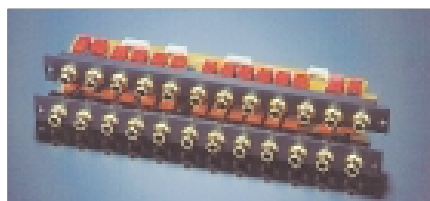
AAVA unit amplifier (one channel). PCB employs Teflon and gold-plated copper

Separate unit amplifiers for left/right mounted on sturdy 8-mm aluminum chassis

The C-2800 contains a total of 18 unit amplifiers, comprising modules for input buffer, AAVA circuit, balanced output, etc. These units are housed in solid enclosures made of sturdy 8-mm thick aluminum and mounted to a glass epoxy motherboard. This prevents electrical interference and guards against mechanical vibrations.

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

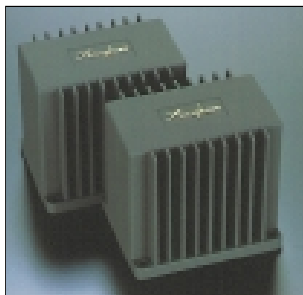
The strategically placed relays of the C-2800 prevent any signal degradation that could occur if the signal has to travel a long way for input and output connection and function switching. Optimum signal flow is maintained at all times.



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

The power supply not only serves as the energy source of an amplifier, the quality of the current supplied to the various loads also has a considerable bearing on sound quality. In the C-2800, newly developed R-toroidal transformers and dedicated filtering capacitors are used for each of the two stereo channels, resulting in a fully monaural construction. The R-toroidal transformer uses a core with a circular cross-section designed to reduce

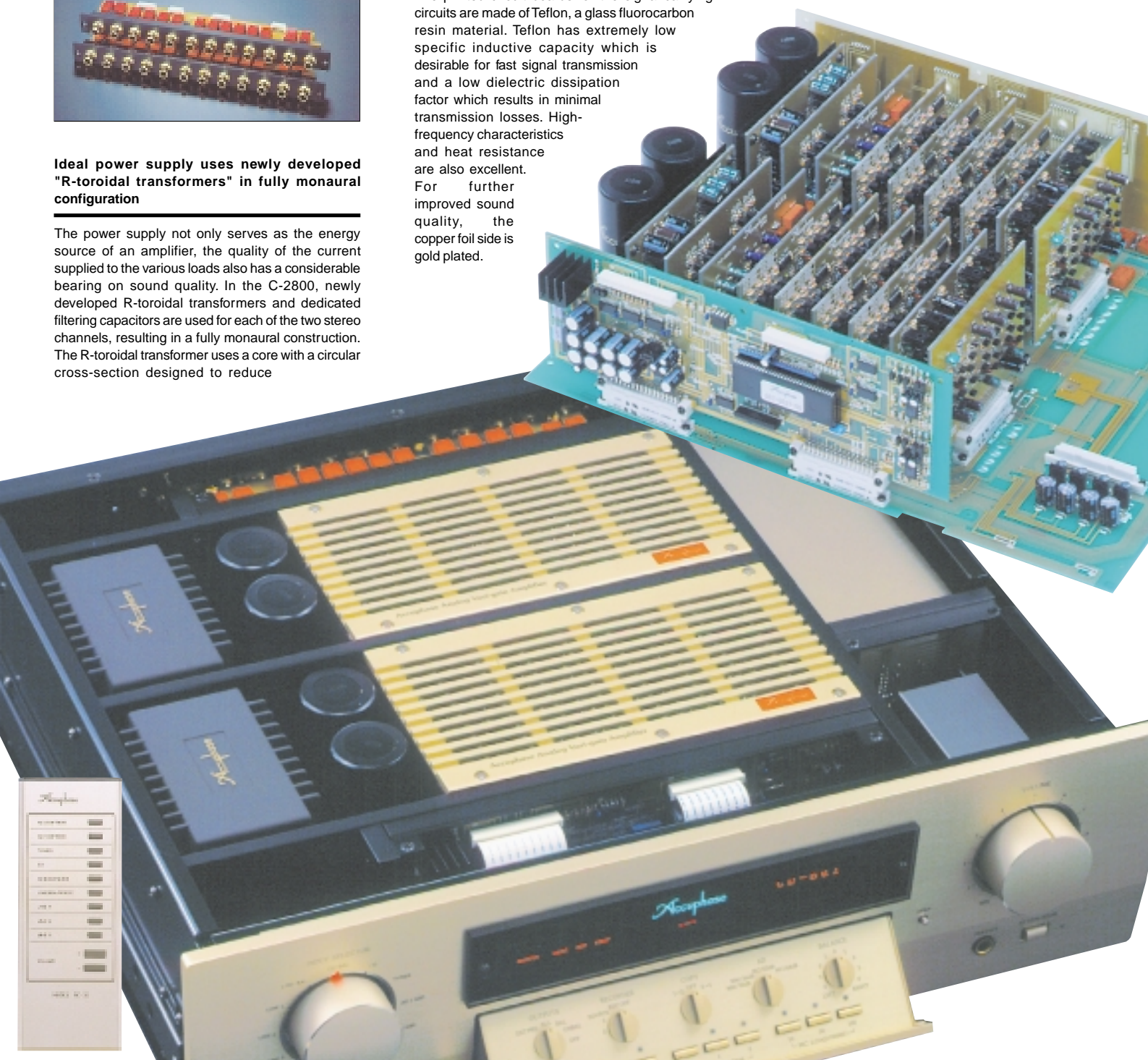
magnetic losses and improve efficiency. Leakage flux is virtually absent. The transformer is housed in a dual-wall enclosure with a glass fiber core and strong resin coating. Epoxy filler with superior vibration-damping characteristics is used to further isolate the transformer, resulting in highly effective triple insulation.



Printed circuit boards made from Teflon with low dielectric constant and low loss

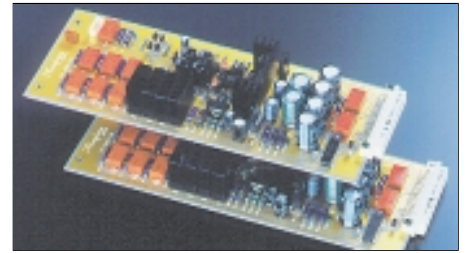
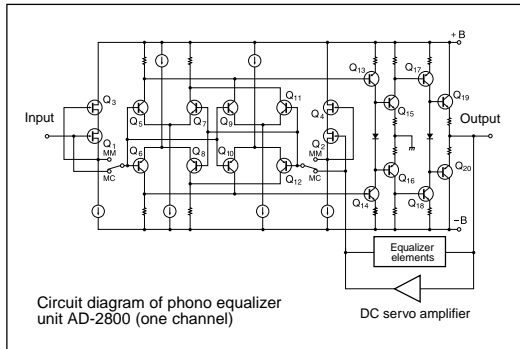
The printed circuit boards for the signal-carrying circuits are made of Teflon, a glass fluorocarbon resin material. Teflon has extremely low specific inductive capacity which is desirable for fast signal transmission and a low dielectric dissipation factor which results in minimal transmission losses. High-frequency characteristics and heat resistance are also excellent. For further improved sound quality, the copper foil side is gold plated.

- Switchable preamplifier gain: 12/18/24 dB (standard position 18 dB)
- Versatile array of inputs and outputs (character label display for inputs)
- Dedicated headphone amplifier optimized for sound quality
- EXT PRE function allows use of external preamplifier
- Useful range of functions
 - Provisions for recording/playback/copying with two recorders
 - Loudness compensator augments bass and treble at low listening volume
 - Phase selector
 - Attenuator
 - Subsonic filter removes ultra low frequency noise
- Massive cabinet of natural persimmons wood



Dedicated Phono Equalizer Unit AD-2800 (Optional)

Analog records can be reproduced by installing the dedicated phono equalizer unit AD-2800 in a rear-panel slot. The AD-2800 uses printed circuit boards made from Teflon material (glass fluorocarbon resin) and is housed in a sturdy aluminum case for complete protection against any external interference. Highly reliable DIN connectors make the shortest possible connection between input and amplification circuits, to assure outstanding S/N ratio.

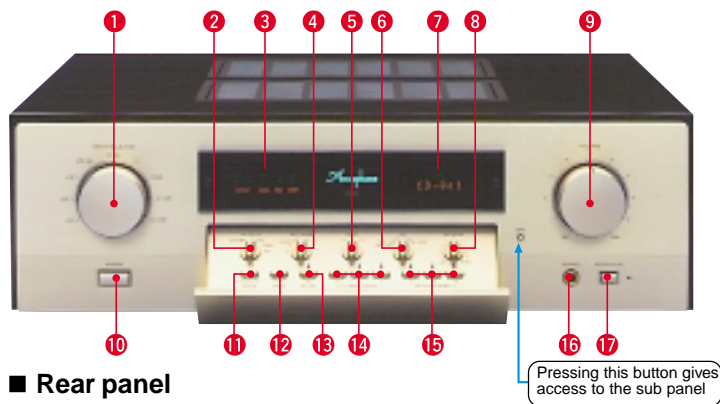


MM	Gain: 30/36 dB, switchable Input impedance: 47 kilohms
MC	Gain: 62/68 dB, switchable Input impedance: 10/30/100 ohms, switchable

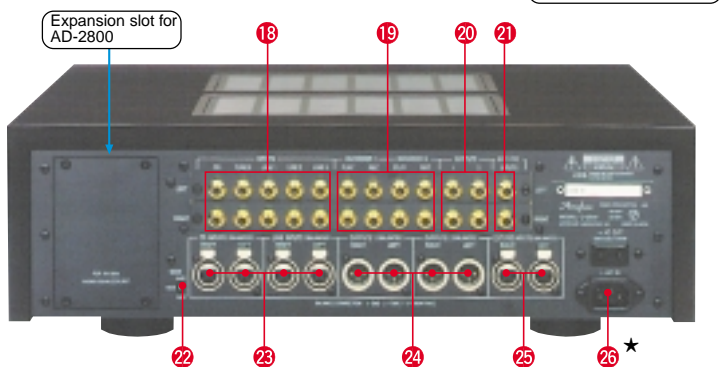
* The phono equalizer units AD-290 and AD-290V designed for the Accuphase models C-290 and C-290V can also be used in the C-2800.

* The AD-2800 can also be used in the Accuphase models C-290 and C-290V.

Front panel



Rear panel



- | | |
|---|--|
| 1 Input Selector
LINE3 LINE2 LINE1 LINE-BAL CD-BAL
CD TUNER AD1 (OP) AD2 (OP) | 14 Loudness Compensator Buttons
OFF 1 2 |
| 2 Output Selector
EXT PRE ALL BAL UNBAL OFF | 15 MC Cartridge Load Impedance Selector
Buttons |
| 3 Function Display | 16 Headphone Jack |
| 4 Recorder Selector
2 1 SOURCE REC OFF | 17 Attenuator Button |
| 5 Copy Selector 1 → 2 OFF 2 → 1 | 18 Line Input Jacks
CD TUNER LINE1, 2, 3 |
| 6 Analog Disc Equalizer Gain Selector
MM/30 dB MM/36 dB
MC/62 dB MC/68 dB | 19 Recorder Input/Output Jacks |
| 7 Input Display | 20 Unbalanced Output Jacks |
| 8 Balance Control | 21 External Preamplifier Input Jacks
(Unbalanced) |
| 9 Volume Control | 22 Gain Selector 24 dB 18 dB 12 dB |
| 10 Power Switch | 23 CD/LINE Balanced Output Connectors
① Ground ② Inverted (-) |
| 11 Output Phase Selector Button | ③ Non-invert (+) |
| 12 Stereo/Mono Mode Selector Button | 24 Balanced Output Connectors (OUTPUT 1, 2) |
| 13 Subsonic Filter Button | 25 External Preamplifier Input Jacks (Balanced) |
| | 26 AC Inlet* |

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 cable with plugs (1 m)
 - Remote commander RC-32

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-2800 installed.

- **Frequency Response** BALANCED INPUT/UNBALANCED: 3 ~ 20,000 Hz +0 dB -3.0 dB
20 ~ 20,000 Hz +0 dB -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/30 dB INPUT	8.0 mV	2.0 mV	47 kΩ
AD:MM/36 dB INPUT	4.0 mV	1.0 mV	47 kΩ
AD:MC/62 dB INPUT	0.2 mV	0.05 mV	10/30/100 Ω, switchable
AD:MC/68 dB INPUT	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 ohms
REC (with AD input): 252 mV, 200 ohms
- **Signal-to-Noise Ratio**

Input terminal	Input shorted, IHF-A weighting		S/N ratio (EIA)
	S/N ratio at rated output		
AD:MM/30 dB INPUT	95 dB		91 dB
AD:MM/36 dB INPUT	89 dB		92 dB
AD:MC/62 dB INPUT	80 dB		87.5 dB
AD:MC/68 dB INPUT	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** MM [30/36 dB] INPUT: 300 mV/150 mV
(0.005% THD) MC [62/68 dB] INPUT: 7.5 mV/3.75 mV
- **Minimum Load Impedance** BALANCED/UNBALANCED OUTPUT: 600 ohms
REC: 10 kilohms

- **Gain** (gain selector: 18 dB) * Gain switch positions: 12/18/24 dB
BALANCED/UNBALANCED INPUT → BALANCED/UNBALANCED OUTPUT: 18 dB
UNBALANCED INPUT → REC OUTPUT: 0 dB
AD (MM 30/36dB) INPUT → BALANCED/UNBALANCED OUTPUT: 48/54 dB
AD (MM 30/36dB) INPUT → REC OUTPUT: 30/36 dB
AD (MC 62/68dB) INPUT → BALANCED/UNBALANCED OUTPUT: 80/86 dB
AD (MC 62/68dB) INPUT → REC OUT: 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 ohms
- **Power Requirements** AC 120 V / 230 V, 50/60 Hz (Voltage as indicated on rear panel)
- **Power Consumption** 48 watts
- **Maximum Dimensions** Width: 477 mm (18-3/4")
Height: 156 mm (6-1/8")
Depth: 412 mm (16-1/4")
- **Weight** 21.2 kg (46.7 lbs) net (22.1 kg with AD installed)
28.0 kg (61.7 lbs) in shipping carton

