

Randall

**RRM 2-80
OWNERS MANUAL**

RANDALL RRM 2-80

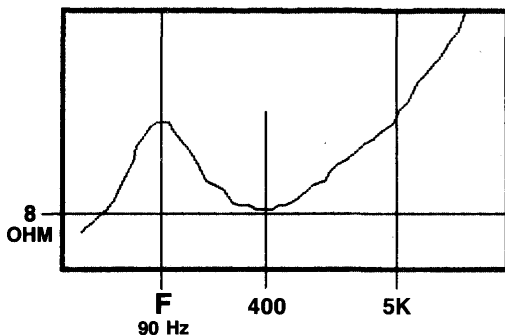
The RRM 2-80 is a two channel "Stereo" amplifier of extremely rugged mechanical and electrical characteristics and capable of delivering full power with both channels driven. It is more easily driven than most other power amplifiers because of its high input sensitivity of approximately 400 mV. Most competitive amplifiers require two to three times as much drive to achieve full output.

The most outstanding feature of the RRM 2-80 is its ability to be operated as either a constant voltage or constant current amplifier simply by flipping a toggle switch on the back panel. No other amplifier on today's market provides this capability. The basic difference between the two methods of operation is more fully explained in the next article.

The two separate power amplifiers in the RRM 2-80 are of a design that has been proven to be extremely reliable over years of testing and the transistors used in the output stages are capable of handling many times more power than the RRM 2-80 generates. This is just another way of guaranteeing long trouble free performance. It is truly a state of the art amplifier that has no equal on today's market.

A COMPARISON ON CONSTANT VOLTAGE VERSUS CONSTANT CURRENT POWER.

Both constant voltage and constant current amplifiers have their distinct advantages. To understand the differences and advantages of both, one must be aware of the way loudspeaker impedance changes with a change in the applied frequency. A loudspeaker may exhibit an impedance of 8 ohms at 400 Hz and may rise to as high as 20 ohms at 5 KHz. The loudspeaker will also exhibit a rapid rise in impedance at its resonant point as the frequency rises (usually between 40 and 120 Hz) and then rapidly fall off to its norm only to continue its gradual rise throughout the audio frequency spectrum as the applied frequency continues to rise. A typical response curve would look something like this with a speaker with a natural resonance of 90 Hz.



This speaker characteristic is particularly effective in constant current amplification because if one applies the power formula $P = I^2 R$, it is easy to see that the power delivered to the speaker increases as the resonance point of the speaker is approached, giving rise to some natural bass boost, then falling off after passing the resonance point, only to continue rising thereby providing additional power as the impedance continues to rise, increasing boost in the higher frequencies.

This makes a constant current amplifier exceptionally well adapted for musical instrument amplification as well as certain hi fi uses.

On the other hand, in a constant voltage amplifier where the voltage delivered to the loudspeaker remains constant as the frequency increases and the impedance increases, one can readily see from the power formula $P = E^2/R$ that the power will actually decrease as the impedance increases.

A constant voltage amplifier is particularly good for electric bass amplification, P.A. systems and other uses where a high damping factor would prove beneficial.

A constant current amplifier typically has a very low damping factor where a constant voltage amplifier has a very high damping factor. This damping factor can best be explained in real terms as causing the sound to be "tight" as in a constant voltage amplifier or ("more colorful") as in a constant current amplifier. Just another reason why a constant current amplifier is superior for most musical instrument applications.

Best of all in the RRM 2-80, one can experience the difference in the two types of amplification by simply flipping a switch and deciding which sound is best suited for a particular use.

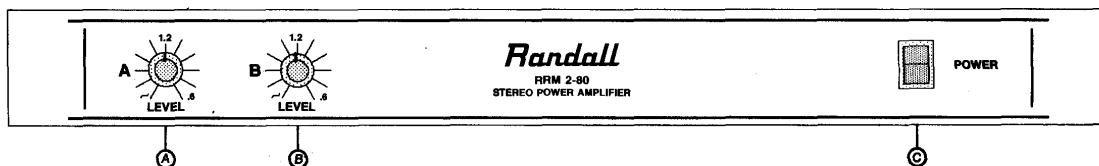
The RRM 2-80 has a damping factor of 200 with an 8 ohm load in the constant voltage mode and a damping factor of 2 in the constant current mode.

If it should be desired to feed both channels from a single source for a monaural operation, it can be accomplished by using a "Y" cord to feed both "A" & "B" inputs. The outputs of side "A" and "B" should then be connected to separate loads. Never connect the output terminals of side "A" and "B" together or severe damage will result.

Simple rules should be followed in operating this amplifier. Be certain adequate ventilation is provided at all times. Heat is a great destroyer of all electronic products. Be certain that the unit is protected as much as possible from any moisture. Do not operate in direct hot sunlight as the black chassis will absorb a great deal of heat and could contribute to failure.

If this unit is operated as specified it will perform to its ultimate specifications indefinitely and should seldom, if ever, require any major service.

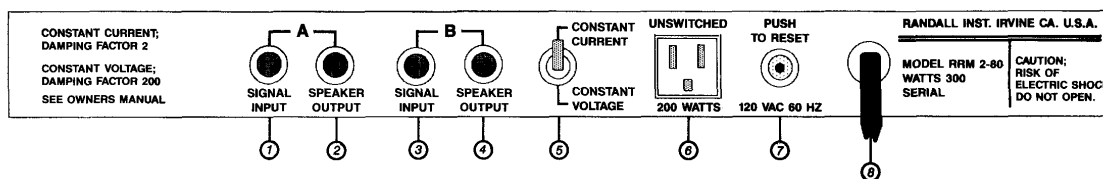
FRONT PANEL



RRM 2-80 Front Panel Features

- A. Volume control channel "A"
- B. Volume control channel "B"
- C. Off on switch and pilot light

BACK PANEL



Back Panel Features

- 1. Signal input jack channel "A"
- 2. Speaker output jack channel "A"
- 3. Signal input jack channel "B"
- 4. Speaker output jack channel "B"
- 5. Toggle switch (to switch constant current - constant voltage)
- 6. 200 WATT 120 VAC unswitched AC outlet
- 7. Circuit breaker (push to reset)
- 8. Power cord

RRM 2 - 80

SPECIFICATIONS
(For constant voltage operation)

Power Output	4 ohms	100 Watts RMS
	8 ohms	65 Watts RMS
Hum	.0018 V	-80 db
Distortion	.04%	@ 100 Watts - 4 ohm load
Frequency Response	+ 1 DB 20 Hz - 20 Kz	
Input Impedance	20K ohms	
Input Sensitivity	400 mV	
Voltage Gain	@ 8 ohms 37 db max	
Damping Factor	200 8 ohm load	
Minimum Load	4 ohms (do not exceed)	
Power Requirement	120 Vac @ 60 ~ 4 amps.	
Input Connection	1/4" phone plug	
Output Connection	1/4 phone plug	
A C Outlet (Auxiliary)	120 Vac @ 200 Watts unswitched	
Size	13/4" High X 19" Wide X 10" Deep	
Weight	11 pounds	

SPECIFICATIONS

(For constant current operation)

Power Output	4 ohms	90 Watts RMS
	8 ohms	63 Watts RMS
Hum	.0018 V - 18 db	
Distortion	.04% @ 90 Watts RMS 4 ohm load	
Frequency Response	+ 1 db 20 Hz - 20 Khz	
Input Impedance	20k ohms	
Input Sensitivity	400 mV @ 8 ohms load 550 mV @ 4 ohm load	
Voltage Gain	37 db max @ 8 ohms	
Damping Factor	2 @ 8 ohms	

All other characteristics the same (All electrical characteristics obtained using a purely resistive load.)

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