

model 931



Model 931 with OCL and differential Amplifier circuitry

Amplify without any distortion! These are key works in the design of any amplifier. But what is distortion and how is it produced? These questions must be answered before a really excellent amplifier can be designed. Usually a sine wave is fed into an amplifier and the amplifier is judged good or bad as it distorts or doesn't distort this very simple wave. However, real music is much more complex and has many loud and abrupt sounds. These sounds are an integral part of good music and are what make it alive. However, it is this very dynamic aspect of music that can cause most distortion in a poorly designed amplifier. This is true when the amplifier

has poor transient response. Live music is very complex and it is difficult to measure with ordinary measuring instruments. That is why Onkyo turned to electronic computer technology to find out the make-up of the music waves. This computer technology was combined with extensive listening tests in an effort to discover and remedy distortion in an amplifier. This is how model 931 was developed. Onkyo also realized that there is an increasing need for a separate power amplifier. This need is especially felt by those who have 4 channel stereo systems or who want a bi-amplifier or tri-amplifier system.


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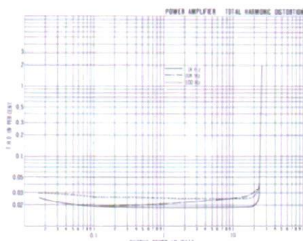
ONKYO® model 931 POWER AMPLIFIER

Function displays



- Speaker Terminals
- Main Input
- Voltage Selector
- Input Sensitivity Selector

Engineering features



Model 931 is an independent power amplifier that is so versatile that it can fit into any system. It was designed so that all distortion is reduced to a minimum. Some of the factors that assure less distortion are quasi complementary SEPP, direct coupled and differential circuitry. The power amplifier circuitry was analysed by a computer but this analysis was not restricted to the audible range alone. Onkyo found that the very low frequencies have a very important bearing on the music even though inaudible. Since these low frequencies are not taken into account when ordinary amplifiers are designed they cause very much distortion. This distortion in the very low frequencies causes IM distortion. This model is rated at 22 watts per channel at 8 ohms. The T.H.D. of model 931 is rated at less than 0.05%. Whether the amplifier is used at full or very low power this distortion rate does not vary. Added stability is gained because a differential amplifier is used. In-

stability in an amplifier will put DC voltage on the loudspeaker terminals and this will lead to distortion. The differential amplifier also takes care of any distortion that could come from fluctuations in the power supply voltage and temperature. The OCL circuitry is an added factor why model 931 has less distortion, a flatter response over the whole frequency range and especially good damping in the lower frequency range.

Two Step Variable Input Sensitivity

The input sensitivity of model 931 is variable so that it can be matched perfectly to any preamplifier. This makes it so very easy to use model 931 in any 4 ch system.

Integrated Right and Left Channel Attenuator

An integrated attenuator for both channels is installed in model 931. This makes attenuation of both channels very easy. With this added feature incorporated into its design model 931 fits very easily into any 4 ch system.

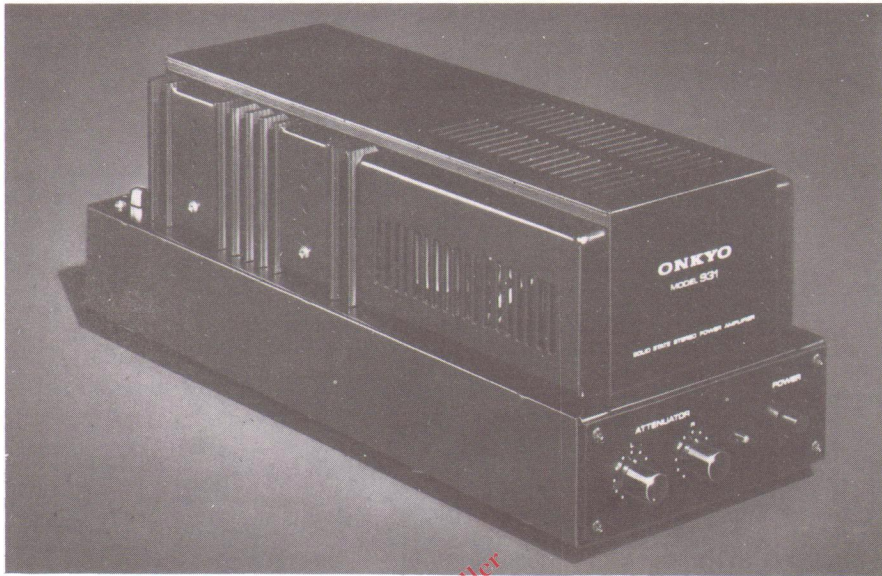
Specifications

Dynamic Power	70W (IHF 8Ω)	(IHF - 3dB, THD 0.5%)
	100W (IHF 4Ω)	
RMS Continuous Power		S/N
(Single Channel Driven)		better than 100dB
22W + 22W (8Ω 1KHz)		(IHF A network input shunt)
27W + 27W (4Ω 1KHz)		Damping Factor
Total Harmonic Distortion		60 (DC ~ 30KHz)
less than 0.1% (at rated output 1KHz)		Load Impedance
less than 0.05% (at 0.5W output 1KHz)		4Ω ~ 16Ω
less than 0.05% (at 10W output 1KHz)		Gain
Inter Modulation Distortion		22dB, 28dB
less than 0.05% (at rated output)		Rated Input Voltage
SMPTE (70Hz : 7KHz = 4 : 1)		1V, 0.5V
Frequency Characteristic	10Hz ~ 80KHz	Input/Output Characteristics
(+0 dB at normal output)		in-phase
(-1 dB at normal output)		Output Terminal
Power Band Width	10Hz ~ 100KHz	SPEAKER-1
		Power
		AC220/240V, 50/60Hz
		Power Consumption
		30W
		Electrical Goods Control Standards
		AC Output
		UNSWITCHED 1
		Dimensions
		130(W) x 352(D) x 135(H) mm
		5.2" (W) x 14.1" (D) x 5.4" (H)
		Weight
		3.5kg
		7.7 lb.

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SOLID STATE STEREO AMPLIFIER



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MODEL 931

SPECIFICATIONS

Dynamic Power	IHF	8 Ω	70W
	IHF	4 Ω	100W
RMS Continuous Power (Single Channel Driven)	8 Ω	1KHz	22W+22W
	4 Ω	1KHz	27W+27W
Total Harmonic Distortion	at rated output	1KHz	less than 0.1%
	at 0.5W output	1KHz	less than 0.05%
	at 10W output	1KHz	less than 0.05%
Inter Modulation Distortion	at rated output		
	SMPTE		less than 0.05%
	70Hz:7KHz=4:1		
Frequency Characteristic	$\pm \frac{0}{1}$ dB	at normal output	10Hz~80KHz
Power Band Width	IHF -3dB, THD 0.5%		10Hz~100KHz
S/N	IHF A Network Input Shunt		better than 100dB
Damping Factor	DC~30KHz		60
Load Impedance			4 Ω ~16 Ω
Gain			22dB, 28dB
Rated Input Voltage			1V, 0.5V
Input/Output Characteristics			in-phase
Output Terminal Power			SPEAKER-1 AC220V, 240V 50/60Hz
Power consumption	Electrical Goods Control Standards		30W
AC Output	UNSWITCHED		1
Dimensions			130W×352D×135H mm
Weight			3.5kg

ONKYO®
AUDIO COMPONENT