

STEREO DISC AMPLIFIER 4

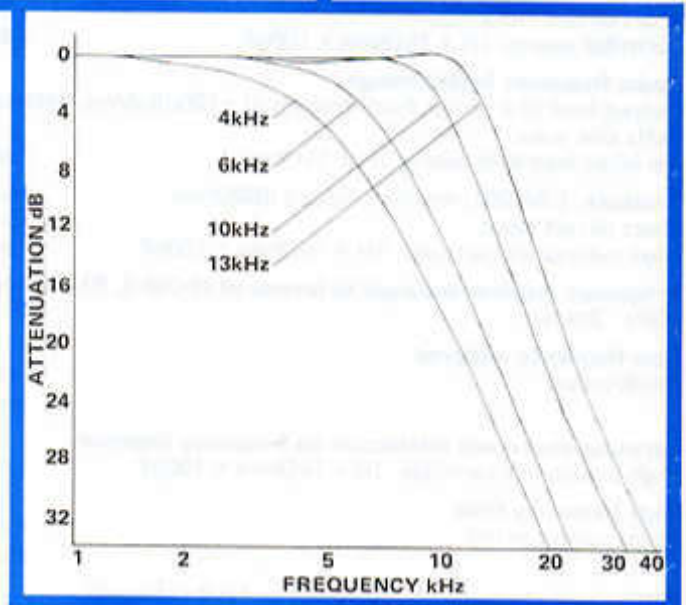
FOR BROADCASTING, DISC MONITORING AND TRANSFER WHEN REPLAY SIGNALS OF THE HIGHEST QUALITY ARE REQUIRED AT LINE LEVEL.



Front panel

Stereo Disc Amplifier 4 supercedes Stereo Disc Amplifier 2 and offers the same facilities but with the addition of a unique high frequency filter. The Response Variable Filter provides, through a single control knob, a 3dB turnover frequency variable between 13 and 4kHz but always with an appropriate roll off characteristic for psychoacoustic considerations.

The unit takes signals directly from a magnetic pick up cartridge and provides equalisation according to the microgroove characteristic. The signals then pass through low frequency filters to remove rumble and then to the low pass filter stages. At the 13kHz setting a 0.4dB ripple Chebyshev characteristic ensures rapid roll off, while at 4kHz, where the ear is sensitive to filters with a high initial slope, a Bessel characteristic is provided. For other settings the filter changes its slope gradually between these two extremes but an ultimate roll off of 18dB/octave is always maintained. This type of filter was conceived by D. C. Hamill* and is manufactured under licence. When the control is turned fully anticlockwise there is a CANCEL position where the filter is bypassed completely without introducing any clicks.



Response variable filter

The final stages are line amplifiers which provide electronically balanced outputs with a low source impedance. The line amplifiers are protected against mains or static voltages applied to the balanced lines either individually or common mode. Internal pins are provided which may be linked together if mono outputs are required.

Cartridge impedance interaction effects are exceptionally low and the harmonic distortion at all audio frequencies, at normal signal levels, is below the noise. The amplifier has very low levels of static and dynamic intermodulation distortion and low hum levels are achieved by the use of an electrostatically screened and mumetal shrouded mains transformer. Precautions are taken in the input stages to minimise radio frequency interference.

The unit has a front panel power indicator light and power supplies using integrated circuit voltage regulators. Adjustment of sensitivity is provided through holes in the box to allow accurate setting of output levels for the type of cartridge in use. The case is of strong diecast aluminium construction with an attractive, durable blue epoxy finish and all components on the rear panel are clearly identified. Units are soak tested for seven days during manufacture.

Stereo Disc Amplifier 4 has unmatched specifications and each unit comes with a check out sheet showing test results for the main parameters. It meets the IBA requirements for disc amplifying equipment and is used extensively by national broadcasters in the U.K. and overseas. Where only unbalanced outputs are required Stereo Disc Amplifier 3 offers similar specifications and for use with either unit the Moving Coil Preamplifier provides optimum performance from all low impedance cartridges. The May 1981 issue of Studio Sound reviewed the Stereo Disc Amplifier and Moving Coil Preamplifier.

SPECIFICATION

Inputs	Colour coded insulated Phono sockets. Supply earth ground post.		
Input impedance	47kOhms \pm 3%, 80pF		
Outputs , electronically balanced	XLR 3 pole male, signal polarity non-inverting.		
Source impedance	500Ohms. Withstands mains or static voltages on lines either individually or common mode.		
1kHz at -44dBV.7 (5mV) set for 0dBV.7 output, loaded 600Ohms (Distortion figures are unaffected by high source impedance, 1H + 1kOhms).			
Total harmonic distortion			
Output +10dBV.7	30Hz-20kHz	below noise	
Output +20dBV.7	1kHz	-88dB, 0.004%	
	30Hz-20kHz	-82dB, 0.008%	
Static intermodulation distortion 50Hz + 7kHz, 4:1			
Output +10dBV.7	-90dB, 0.003% measurement limit		
Output +20dBV.7	-82dB, 0.008%		
Dynamic intermodulation distortion	3.18kHz square wave (single pole -3dB @ 100kHz) + 15kHz sine wave, 4:1. Relative to 15kHz component. -70dB, 0.03% measurement limit.		
Pre-emphasised input 500mV pk-pk			
Noise	20Hz-20kHz mean reading meter	CCIR468-2 weighting and peak meter	CCIR/ARM reference 2kHz
Short circuit input	-71dBV.7	-64dBV.7	-75dBV.7
Cartridge source, 1H + 1kOhms + 100pF	-68dBV.7	-56dBV.7	-67dBV.7
Radio frequency breakthrough	Output level in a carrier field strength of +100dB μ V/m, 84MHz, 100% amplitude modulated with 1kHz sine wave. 1m input lead with source 1H + 1kOhms		
	Less than -70dBV.7		
Crosstalk , CANCEL position, loaded 600Ohms	Non linear:	Below noise, all conditions below clipping	
Short circuit input	Linear:	1kHz -70dB; 30Hz -20kHz -50dB	
High inductance cartridge, 1H + 1kOhms + 100pF	Linear:	1kHz -60dB; 30Hz -20kHz -40dB	
Frequency response accuracy to inverse of IEC98-4, RIAA recording characteristic	30Hz - 20kHz		
	Within 0.5dB		
Low frequency response	18dB/octave		
	-3dB @ 23Hz, 20Hz and below exceeds IEC98-4 replay requirements		
Cartridge impedance interaction on frequency response	High inductance cartridge, 1H + 1kOhms + 100pF		
	Less than 0.2dB		
High frequency filter	Front panel control		
	CANCEL, or 0.4dB ripple Chebyshev at 13kHz changing to Bessel at 4kHz (-3dB points)		
Differential phase shift between left and right channels	50Hz - 20kHz		
	Within 0.5 $^{\circ}$		
Worst error at LF and HF filter turnovers	Within 5 $^{\circ}$		
Clipping at 1kHz	+24dBV.7		
Clipping point complementary to IEC98-4 recording characteristic	30Hz - 20kHz		
	Within 1dB		
Clipping determined by onset of peaky distortion products or THD exceeding -80dB.			
Sensitivity at 1kHz	2.6-15mV (-49 - -34dBV.7) for 0dBV.7 output, adjustable		
Supply input	IEC connector, 90-120V or 200-250V 50-60Hz 10VA		
Safety	Complies with IEC65-2, BS415		
Dimensions and weight	W190mm, H70mm, D190mm; 1.6kg		
2.5 metres supply lead to BS6500 with IEC connector supplied along with instructions and servicing details.			
*Wireless World, August 1981, p59-64.			

Rear panel



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