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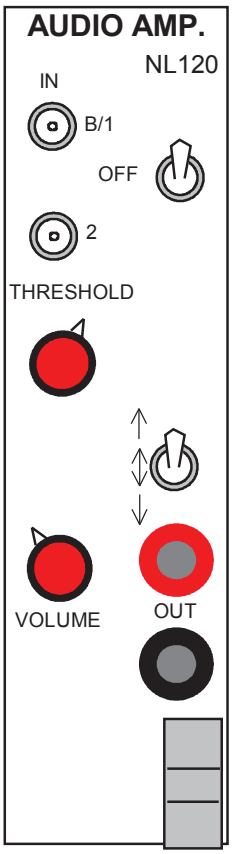
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NL120S - Audio Amplifier



Introduction

The NL120S Audio Amplifier is a power amplifier for driving a 4 or 8 ohm loudspeaker such as the NL985. It has sufficient power amplification to raise a ±20mV signal to a moderate sound level. The module features an input selector for switching between two input signals, and the options of amplifying only positive or negative peaks (useful when baseline noise masks the sounds of nerve spikes of interest). The output is shaped to improve the low frequency response of small loudspeakers, and is power limited to minimize the nuisance caused by large transients such as shock artifacts

Fig.NL120S-1 illustrates the operation of the THRESHOLD potentiometer and the mode toggle switch. The threshold levels and a typical input waveform are shown at the top. Large voltage excursions are clipped symmetrically about the baseline at the internal power limit, whatever the toggle switch setting. With the toggle switch in the middle position the output is the amplified input waveform (shown at the bottom of the figure) un-distorted, except for the power limit clipping. Power limiting protects small loudspeakers (as well as ears!) from amplified shock artefacts etc. which can be an order of magnitude larger than the signals of interest in some recordings.

The two middle traces in Fig.NL120S-1 show the outputs for the other two positions of the mode toggle switch. With the switch in the up position, only positive input peaks greater than the adjustable threshold are amplified; negative peaks and baseline noise are suppressed. With the switch in the down position, only negative peaks whose absolute values are greater than the threshold are amplified. The threshold increases positively, with clockwise rotation of the THRESHOLD control, with the toggle switch in the up position and negatively with the toggle switch in the down position.

This threshold configuration allows separation of spikes which are predominantly positive from those which are predominately negative, in addition to the usual selection by amplitude. (The output signal is, in fact, inverted, which is not shown in Fig.NL120S-1). Note that the input to the NL120S need not be analogue waveforms such as spikes at the AC Amp output, for example. It is sometimes useful to listen to the temporal patterns in the TTL outputs of the NL201 Spike Discriminator.

Specification

Input impedance	: 10Kohms
Bandwidth	: 10Hz to >15kHz
Output voltage range	: ±1.5V
Minimum resistance across output	: 3ohms

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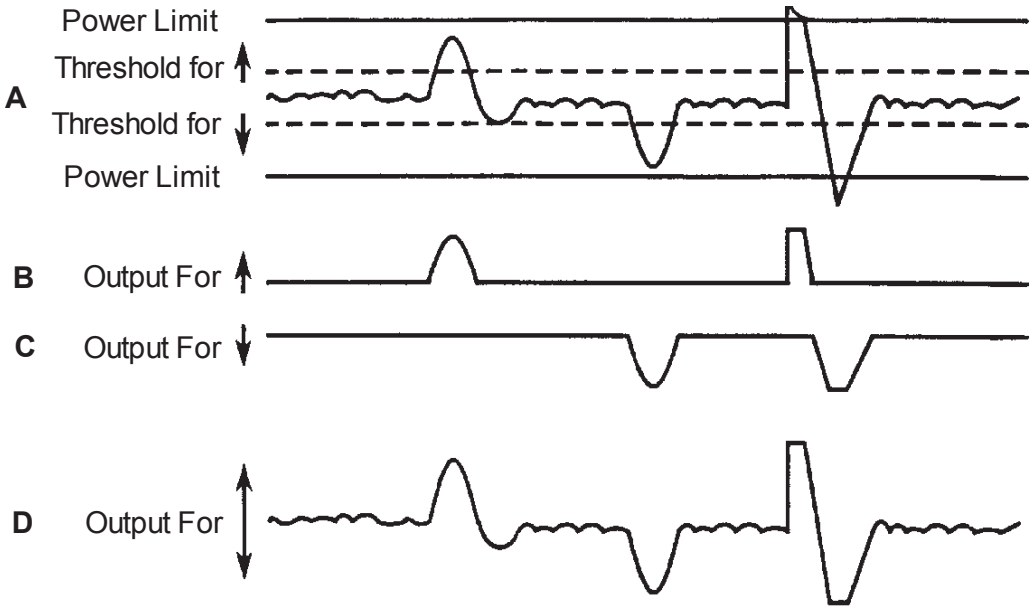


Fig. NL120S-1 (A) Input to the NL120S Audio Amplifier (B), (C) and (D) are the three selectable outputs.

First Issued: October 30, 2007 **Last Revision:** January 12, 2011 **Printed:** January 12, 2011
File Reference: N:\Docs\Company\Manuals\NeuroLog\NL120S.odt

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