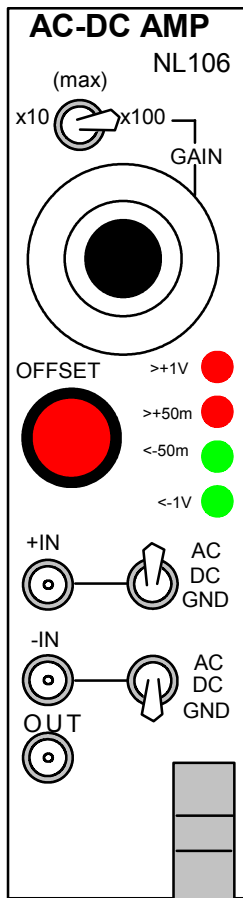


## NL106 - AC-DC Amplifier



### Introduction

The **NL106 AC-DC** differential Amplifier features continually adjustable amplification and DC offset with output level indication.

The amplification (or attenuation) is adjusted using a calibrated, locking, ten-turn control where the range is set by a switch which gives the two gain ranges of 0 and x10 or 0 and x100.

The input controls are similar to those of conventional oscilloscope vertical amplifiers allowing operation in AC or DC coupled, single-ended (inverting or non-inverting) or differential modes. Up to  $\pm 2V$  DC at either input can be zeroed using the ten-turn DC OFFSET adjustment.

The output voltage is shown by 4 light-emitting diodes: two red LED's show outputs in excess of +50mV and +1V and two green LED's show corresponding negative outputs. Thus, adjustment of gain and DC offset can be accomplished without an oscilloscope monitor.

Low drift, low noise and moderate input impedance make the **NL106** suitable either as an amplifier for low impedance sources, or as a variable gain stage following a preamplifier.

Each input of the amplifier is accessible through a single pole socket and separate control of AC or DC operation, with the option of amplifier grounding to remove the signal, is provided by a toggle switch adjacent to each input socket.

A single time constant of 0.1 seconds applies to the AC operation condition and the input impedance is 1Mohms for each input.

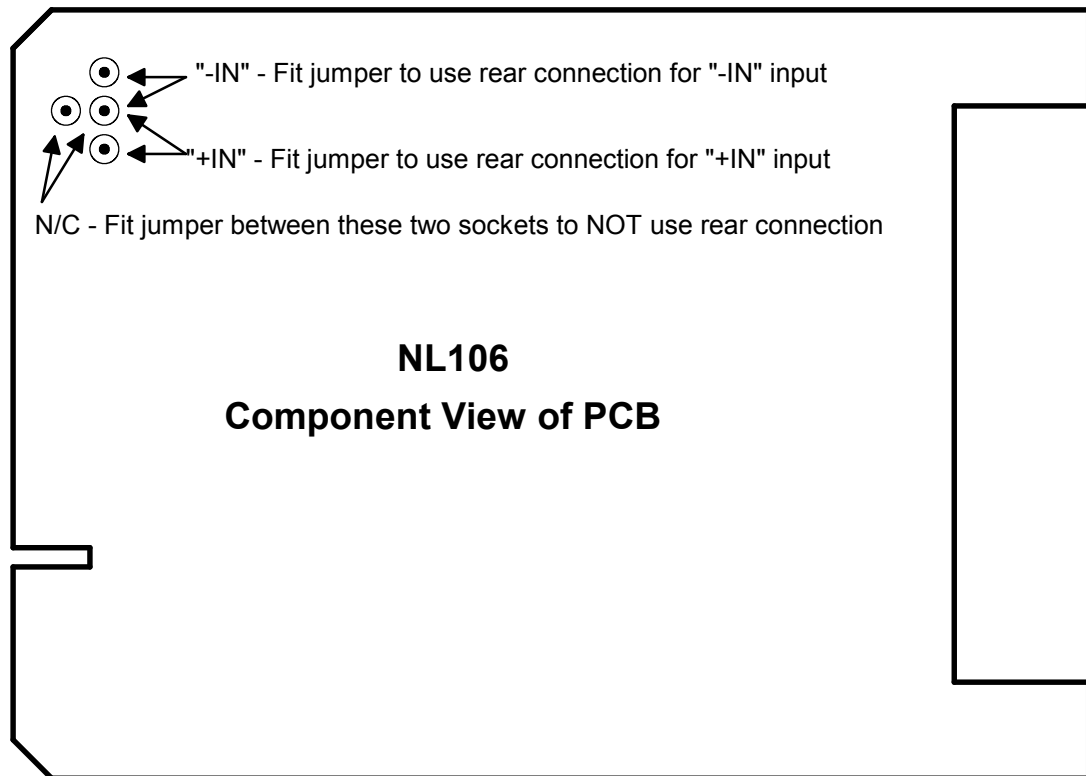
Output limiting will occur with input signal exceeding  $\pm 2.5V$  differentially or single-ended regardless of gain setting and common mode levels of up to  $\pm 3V$  can be handled. Within these limitations the **NL106** can be used to provide an output proportional to the difference between two DC signal levels.

**NOTE:** When only one input is used, the other input must be switched to **GND** to preserve the bandwidth of the unit. If not done, the unused input will "pick-up" some of the signal on the other input and alter the frequency response of the unit.

### Specification Summary

Input voltage range	:	$\pm 3V$ (working): $\pm 15V$ (overload)
Input impedance	:	1Mohm
Gain	:	0 to x10 or 0 to x100 continuously variable by ten-turn potentiometer
Small signal frequency response	:	( $\pm 1V$ out) : $> 30kHz$
Low frequency cut-off in AC mode	:	2Hz
Output voltage range	:	$\pm 12V$
Output Impedance	:	600ohms
DC offset range	:	$\pm 2V$ at either input, ten-turn potentiometer adjustment
CMRR	:	$> 2500:1$ at 50Hz

Rear connections to the motherboard allow Input and Output interconnections between this module and other analogue modules without the need of front panel cables.



### **Rear Connections**

The rear edge connector in the NL900 rack allows adjacent modules to be connected together without the need of front panel leads.

**Output Signal** - This module has the output signal permanently connected to the rear connector for automatic routing to the module on the immediate right.

**Input Signals** - The output signal from the module to the immediate left can be routed to either the "+IN" or "-IN" inputs, or left open. This is done by removing a jumper, in the upper rear corner of the PCB, and placing it in the appropriate pair of holes.

We reserve the right to alter specifications and price without prior notification.

**First Issued:** before 1984

**Last Revision:** April 8, 2022

**Printed:** April 8, 2022

**File Reference:** N:\Docs\Company\Manuals\NeuroLog \ NL106-2022.lwp