

NL109 - Bridge Amplifier



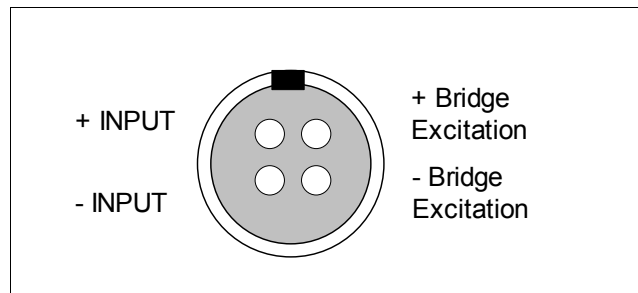
Introduction

The **NL109 BRIDGE AMPLIFIER** is DC coupled, differential amplifier intended for use with transducers which require a bridge excitation voltage, including our own force transducers (NL61, NL62 and NL63). It can also accept our NL100AK Headstage for DC coupled microelectrode recordings. The output from the NL109 is the amplified and filtered difference between the +IN and -IN signals. An onboard jumper allows the user to set the NL109 to a “Half Bridge” mode for single-ended inputs.

Features Include:-

- 1 Wide gain range
- 2 Wide high frequency cut range
- 3 Integral power supply for bridge excitation
- 4 Excellent DC stability
- 5 AC mode with two time constants (0.1s and 10s)
- 6 Autozero button for rapid automated zeroing of DC offset
- 7 Accepts NL100AK headstage for DC microelectrode recordings
- 8 Optional Half Bridge Setting – allows single-ended amplification

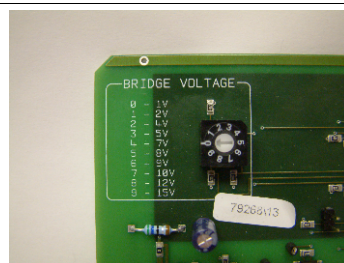
Input Socket



The front panel IN socket, seen from the front of the NL109 panel. If a NeuroLog System transducer is not being used with the NL109, an NL963K Plug or NL953K Open Ended Cable must be correctly wired to the particular transducer being used.

Bridge Excitation Voltage

Switch Position	Voltage	Switch Position	Voltage
0	1V	5	8V
1	2V	6	9V
2	4V	7	10V
3	5V	8	12V
4	7V	9	15V

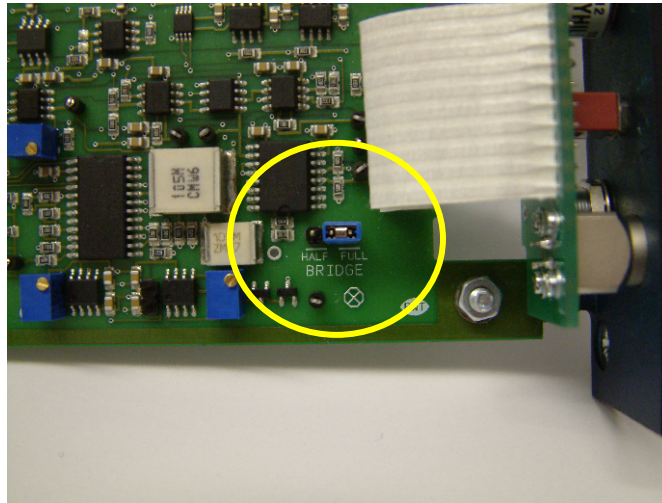


PCB mounted Bridge Voltage setting control (set to 1V)

Once the correct voltage has been decided upon, the excitation voltage control can be set by inserting a flat-bladed screwdriver into the white “arrow” slot and rotating to the correct number. Note that the voltage is generated symmetrically about zero i.e. Position 3 (5V) is $\pm 2.5V$.

Half Bridge/Full Bridge Mode

An onboard jumper (hi-lighted by the yellow circle in the photograph below) sets the NL109 to “Half Bridge” or “Full Bridge”. Full Bridge mode is used for standard differential inputs, while the Half Bridge mode allows single-ended (non-differential) input signals to be amplified and filtered via the + INPUT. In this mode, the - INPUT is set at the centre point between the + and - Bridge Excitation values.



Specification Summary

Input voltage range:	:	$\pm 1.5V$ Working, $\pm 15V$ Absolute
Gain:	:	x1 to x5,000 (1,2,5... sequence)
Cal (Calibration):	:	Calibration control provides 0 to -40% gain reduction.
High Frequency Cut:	:	0.3 to 30,000Hz (1,3,10... sequence, $\pm 10\%$)
Low Frequency Cut:	:	DC, 0.1Hz or 10Hz ($\pm 20\%$)
Zero Button:	:	Presses longer than 1s in duration activate the zero circuit (the light sequence below is followed). For offsets of $\pm 300mV$ (RTI), the zero function will move the baseline to within $5\mu V$ of zero. For larger offsets of up to $\pm 3V$ (RTI), the baseline is brought within $50\mu V$ of zero.
Zero Bi-colour LED:	:	Constant Green – Normal working state/autozero successful. Off – Performing Autozero (Zero pressed for longer than 1s). Constant Red – Autozero has failed.
Excitation Voltage:	:	1V to 15V (10 position control mounted on the PCB)
Output Voltage:	:	$\pm 13.5V$
CMRR:	:	$> 90dB @ 50Hz$
Onboard Jumper:	:	Half Bridge - PCB jumper placed over left and centre pins. Full Bridge - PCB jumper placed over right and centre pins (or missing).
Rear Connections:	:	Output signal is routed via internal edge connector to the module on the immediate right of the NL109.

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