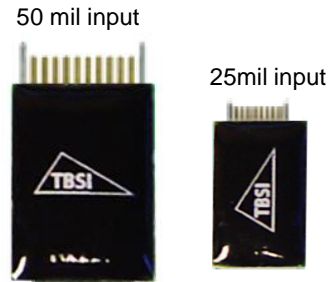




Triangle BioSystems, Int'l.



## 4 Channel Tethered Gain 1000 Headstage

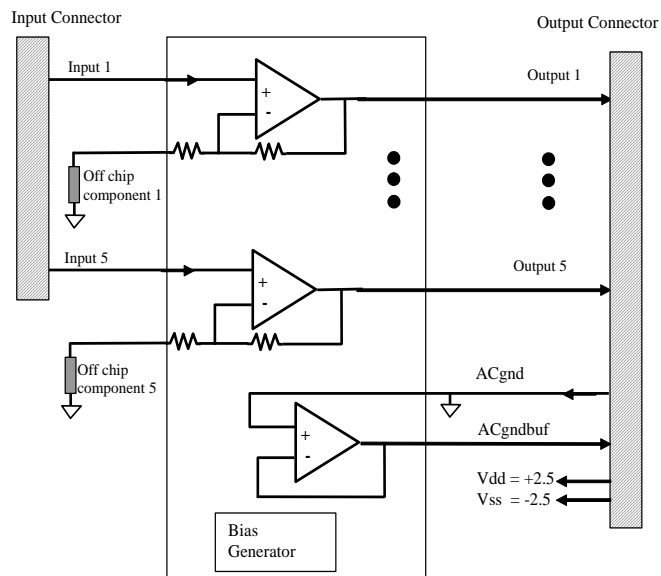
### Headstage Features

- Custom VLSI circuit provides small size & reduced weight
- Weight < 0.8 grams
- 4 channels (4ch plus 1 reference)
- Gain of 1000
- Unity gain ground buffer output
- Selectable bandpass filtering per channel
- 3v/5v operation
- Size for Gain 1000:  
5x25x17mm for 50mil Input Omnetics  
5x19x11mm for 25mil Input Omnetics

Triangle BioSystems, Int'l. offers a 4-channel gain 1000 analog headstage subassembly that is used to provide a wired connection between implanted electrodes and neural recording and analysis equipment. The main function of the headstage is to precondition the neuron pulse signals and provide a buffered connection over a low impedance cable. Each headstage design is based on a custom, low power VLSI developed by TBSI. The result is a solution with superior performance in a very small form-factor with less weight.

The 4-channel gain 1000 headstage includes a selectable bandpass filter.

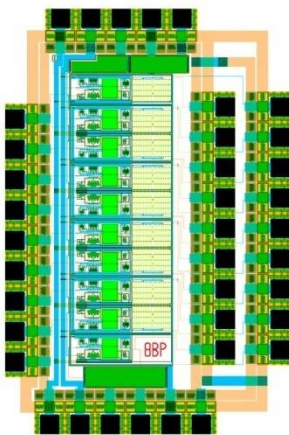
### Block Diagram



# Headstage Specifications

## Electrical

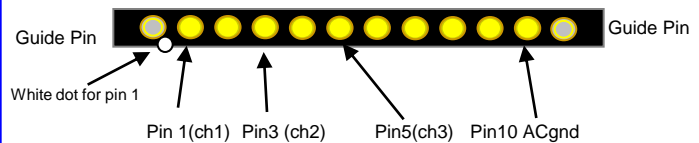
Parameter	Min	Typ	Max	Units	Notes
<b>Power Supply</b>					
3 volt supply	3.0	3.3	3.6	Volts	3.3v Bipolar power supply (+/- 1.65v)
Average Icc 3v	5.6	6.1	6.7	ma	
5 volt supply	4.5	5	5.5	Volts	5v Bipolar power supply (+/- 2.5v)
Average Icc 5v	6.8	7.5	8.5	ma	
<b>Analog Channel</b>					
Input voltage range (5v)	-1.2	0	1.8	Volts	For 5v Bipolar power supply
Input voltage range (3.3v)	-.6		.8	Volts	For 3.3v Bipolar power supply
Common mode center		0		Volts	For bipolar power supplies only
dc Offset	-10	0	10	mVolts	For bipolar power supplies only
Gain 1000	950	1000	1050		Factory selectable gain
G1000 BW @ 5v	.8		22	kHz	-3dB input signal level BW
Input impedance		22		Mohms	At 1kHz
Output impedance		158		ohms	At 1kHz
Input referred noise		6.2		$\mu$ Vrms	for DC - 10kHz frequency with all inputs grounded
THD			-63	dB	@ 5kHz and 1 volt p-p input
Phase Delay		30		uSecs	@ 5 kHz input
Settling Time		5.5		uSecs	With 1v step input
<b>Mechanical Specs</b>					
Length		15		mm	Edge to Edge of connector pins
Width		14		mm	
Height		3.0		mm	
Weight			.8	grams	
<b>Miscellaneous</b>					
Reference Bias Current		78		uA	Included inside headstage
Junction Temperature	-40	25	100	C	



Gain 1000 die

## Electrode Side Omnetics Connector

Looking At Input Electrode Connector (50mil is PN A11862 or 25mil is PN is A8376-001)



Electrode mating 25 mil connector is Omnetics PN A8393-001  
Electrode mating 50 mil connector is Omnetics PN A11449

Recorder side headstage cables come pre-wired and attached and can be ordered with different lengths up to 3 feet.

## Ordering Information

Part No.	Gain	BP Filter
Neuro4BPG1000	Gain 1000	Yes

