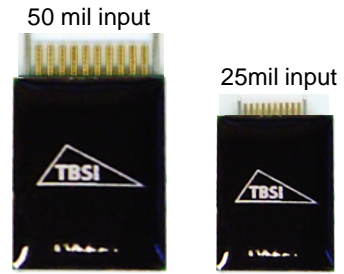




Triangle BioSystems, Int'l.

## 8 Channel Tethered Gain 20 and 100 Headstages



### Headstage Features

- Custom VLSI circuit provides small size & reduced weight
- Weight < 0.9 grams
- 9 channels (8ch plus 1 reference)
- Available with gain of 20 and 100
- Unity gain ground buffer output
- Selectable bandpass filtering per channel
- $\pm 1.65V/\pm 2.5V$  operation
- Size for Gain 20 & 100:  
5x25x17mm for 50mil Input Omnetics  
5x19x11mm for 25mil Input Omnetics

Triangle BioSystems, Int'l. offers a family of 8-channel analog headstage subassemblies that are 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.

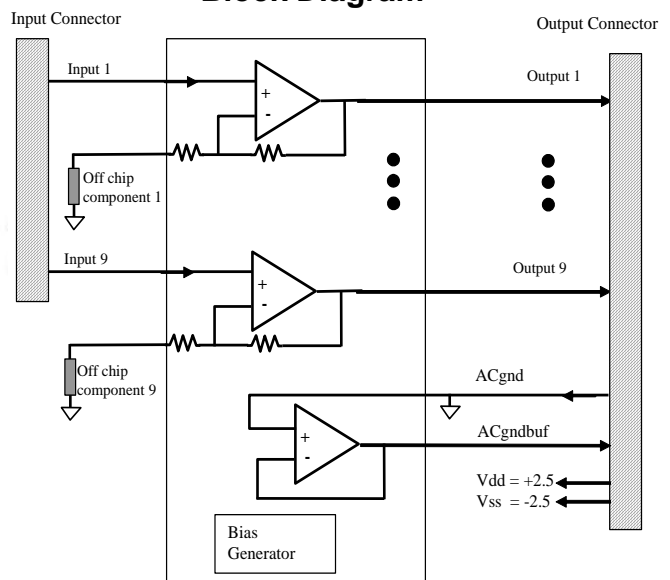
The 8-channel headstages are available with gains of 20 and 100. An all headstages include a selectable bandpass filter. A gain 1000 is also available that is the size and weight of the 16 channel headstage

### System Overview



NeuroWare™ certified

### Block Diagram

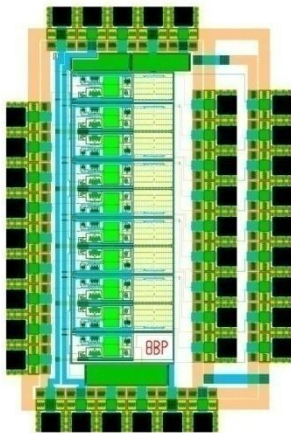


\*does not apply to gain 1000 version

# Headstage Specifications

## Electrical

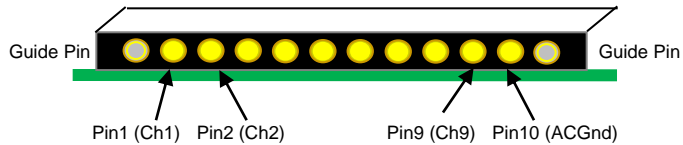
Parameter	Min	Typ	Max	Units	Notes
<b>Power Supply</b>					
±1.65 volt supply	3.0	3.3	3.6	Volts	3.3v Bipolar power supply ( $\pm 1.65v$ )
Average Icc	5.6	6.1	6.7	mA	
±2.5 volt supply	4.5	5	5.5	Volts	5v Bipolar power supply ( $\pm 2.5v$ )
Average Icc	6.8	7.5	8.5	mA	
<b>Analog Channel</b>					
Input voltage range ( $\pm 2.5V$ )	-1.2	0	1.8	Volts	For 5V Bipolar power supply
Input voltage range ( $\pm 1.65V$ )	-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 20	19	20	21		Factory selectable gain
Gain 100	95	100	105		Factory selectable gain
Gain 1000	950	1000	1050		Factory selectable gain
G20 BW @ $\pm 2.5V$	.8		150	kHz	-3dB input signal level BW
G100,G1000 BW @ $\pm 2.5V$	.8		22	kHz	-3dB input signal level BW
Input impedance		50		Mohms	At 1kHz
Output impedance		158		ohms	At 1kHz
Input referred noise		5.1		$\mu V_{rms}$	for DC - 10kHz frequency with all inputs grounded
THD			-63	dB	@ 5kHz and 1V 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 20 & 100 die

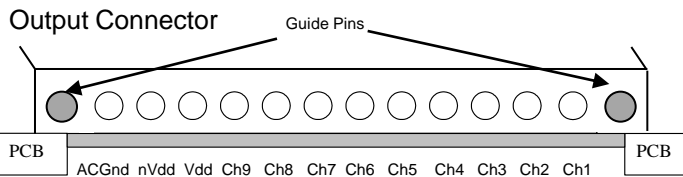
## Electrode Side Omnetics Connector

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



Mate logo to logo for correct connector orientation.

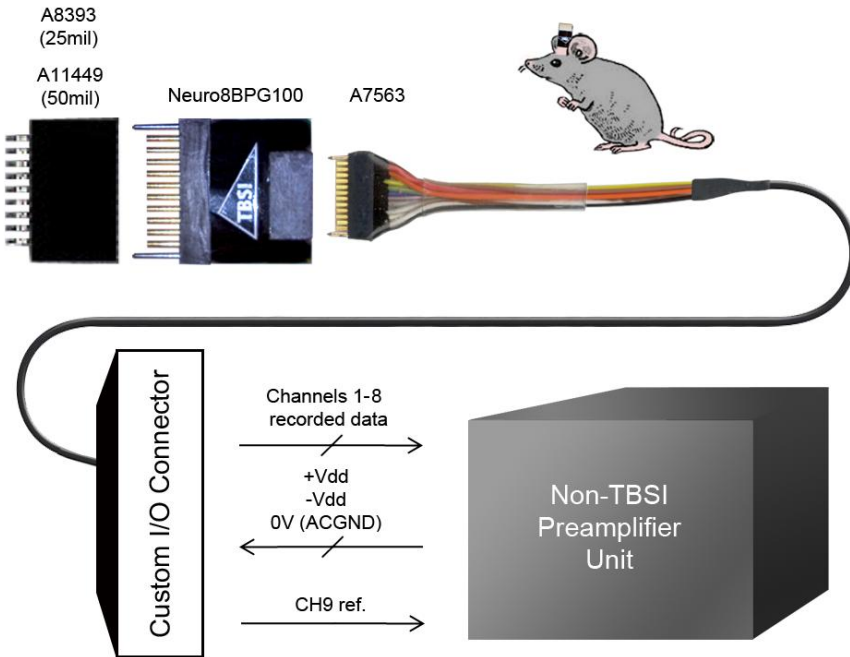
Electrode mating 25 mil connector is Omnetics PN A8393-001  
Electrode mating 50 mil connector is Omnetics PN A11449



## Ordering Information

Part No.	Gain	BP Filter
Neuro8BPG20	Gain 20	Yes
Neuro8BPG100	Gain 100	Yes



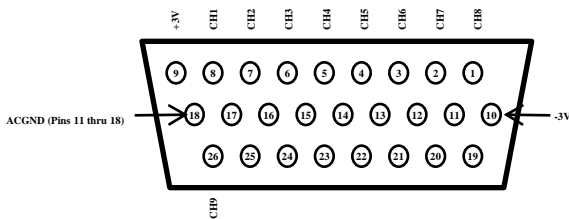


## Available Grounding and Referencing Connections for T8G20,100 Headstage:

**ACGND:** Connect your animal ground to ACGND (see pinout diagram on pg2) of the headstage. This is typically connected to earth or system ground (which is 0V potential) of the recording system.

**CH9:** This is an extra recording channel that can be used as a common mode reference signal for external preamplifiers. This common mode reference channel is useful for removing animal movement artifacts or any other common mode noise found at the headstage input pins.

## Front View

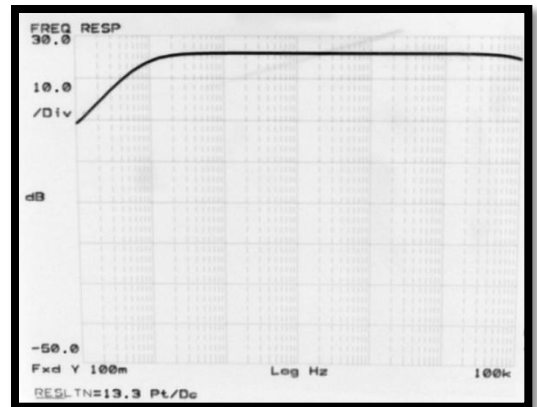


## Rear View



\* 16ch T-series recording unit is exclusively powered via USB

## Gain 20



## Gain 100

