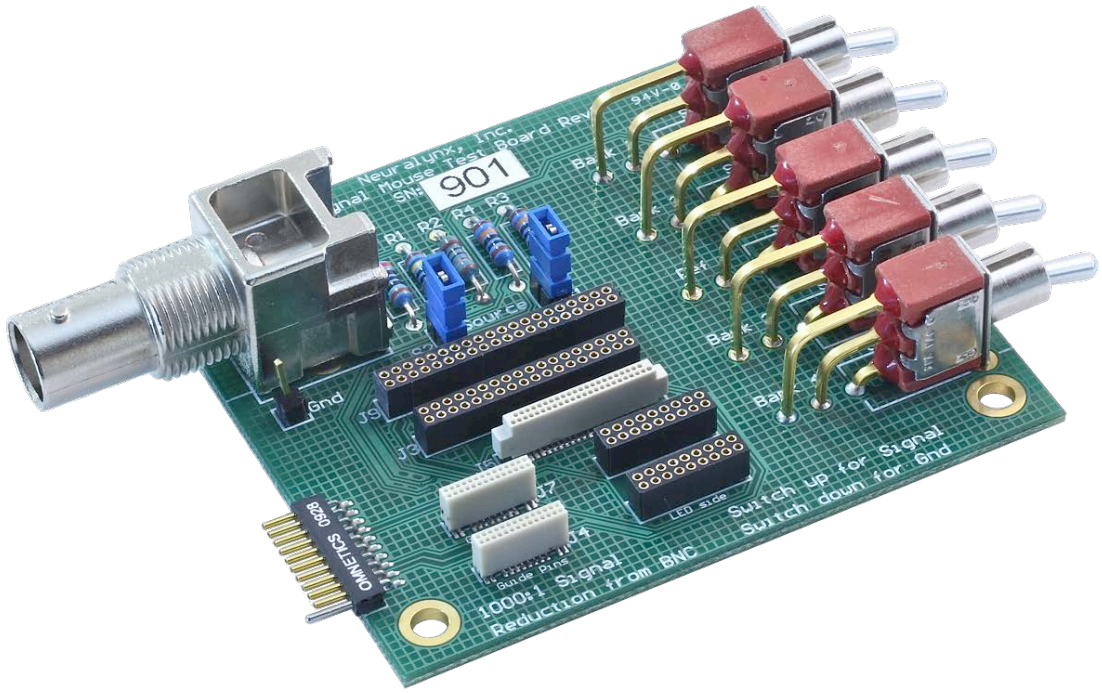
Neuralynx
High Density Electrophysiology Recording Systems



Signal Mouse

Used to provide input signal for testing and troubleshooting Neuralynx products.

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Table of Contents

1 Document Revision History 3
2 Document Overview 3
3 Signal Mouse Overview 3
4 Glossary 4
5 Major Component Layout 5
6 Normal Usage 6

List of Figures and Tables

Figure 5-1 Labeled Signal Mouse 5
Table 5-1 Toggle Switch Functionality 5

1 Document Revision History

03/30/2012	Rev 1.0	Initial Creation of Document

2 Document Overview

This document gives a brief overview of the purpose and functionality of the Signal Mouse.

3 Signal Mouse Overview

The Signal Mouse provides a simple way to test a Neuralynx Headstage Preamplifier by generating input and reference signals that would normally come from implanted electrodes. It allows a user to quickly test an acquisition system if a failed component is suspected.

4 Glossary

Signal Switches **–** SW1, SW2, SW4, and SW5 on the Signal Mouse
Reference Switch **–**SW3 on the Signal Mouse

5 Major Component Layout

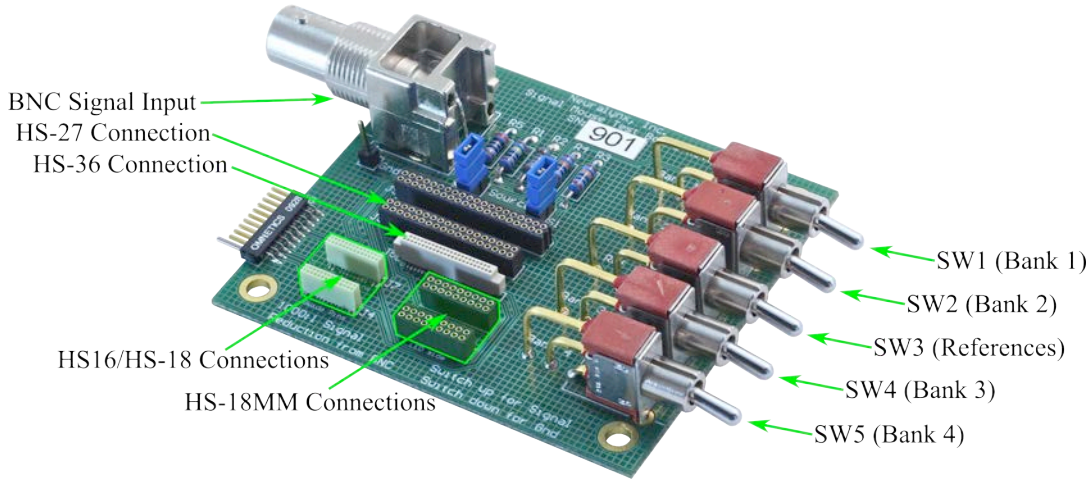

Figure 5-1 Labeled Signal Mouse

The **BNC Signal Input** is used to input a test signal from function generator such as the Minirator provided by Neuralynx. Note that the Signal Mouse has a 200Ω input impedance and reduces the input signal by 1000:1.

The **Headstage Connections** are Mill-Max and Omnetics connectors that interface with Neuralynx Headstages. When connecting a Headstage with an Omnetics connector to the Signal Mouse be sure to align the guide posts on the Headstage with the guide holes on the Signal Mouse. When connecting a Headstage with a Mill-Max connector be sure to match the side of the Headstage with the LED with the *LED Side* Label on the Signal Mouse.

Toggle Switches SW1-SW5 control the inputs to the Headstage as described in the table below.

Switch	Switch State	Result	Headstage Bank Channels			
			HS-16*/HS-18	HS-18MM	HS-27	HS-36
SW1	Up	Bank 1 Driven	Channels 1-4	Channels 1-4	Channels 1-6	Channels 1-8
(Bank 1)	Down	Bank 1 Grounded				
SW2	Up	Bank 2 Driven	Channels 5-8	Channels 5-8	Channels 7-12	Channels 9-16
(Bank 2)	Down	Bank 2 Grounded				
SW3	Up	References Driven	Reference 1	Reference 1	References 1-3	References 1-4
(References)	Down	References Grounded				
SW4	Up	Bank 3 Driven	Channels 9-12	Channels 9-12	Channels 13-18	Channels 17-24
(Bank 3)	Down	Bank 3 Grounded				
SW5	Up	Bank 4 Driven	Channels 13-16	Channels 13-16	Channels 19-24	Channels 25-32
(Bank 4)	Down	Bank 4 Grounded				

Table 5-1 Toggle Switch Functionality

*The Reference Switch must be set to the Down Position a HS-16 with the Signal Mouse.

6 Normal Usage

The Signal Mouse is typically used to test a system from the Headstage inputs all the way through the acquisition hardware to the software display.

The following method is usually used:

1. Attach the Headstage to the correct connection on the Signal Mouse.
2. Connect the other end of the Headstage to the Neuralynx Data Acquisition System.
3. Connect the Minirator provided by Neuralynx to the Signal Mouse and configure it to output a 1V Square Wave at 20 Hz.
4. Set the Signal Switches to the Up Position.
5. Set the Reference Switch to the Down Position.
6. Boot the Data Acquisition System Hardware and Software configured to your desired settings and Start Acquisition.

This will connect a 1mV Square Wave at 20Hz to all channel inputs on the Headstage and ground the reference inputs. If all channels are configured to reference against one of these grounded references, Cheetah will display the input signal with signal conditioning based on Cheetah Software Settings. If the Reference Switch is set to the up position all channels should flatline and show the baseline noise of the system.