

ZIF-CLIP HEADSTAGE ADAPTERS

ZIF-Clip® headstage adapters are available for use with a variety of electrodes. Standard operation for ZIF-Clip® headstages is shared differential (ground and reference are not tied together). Carefully note and understand the use of the ground(G) and reference(R) connections provided on your probe and adapter. When using the ZIF-Clip headstage with an adapter, it can be configured for single-ended operation by tying ground(G) and reference(R) connections together on the adapter. The reverse side of this fast facts provides pinouts for common adapters. For more Adapter pinouts, see your System 3 manual.

Important!: When using multiple headstages, ensure that a single ground is used for all headstages. This will avoid unnecessary noise contamination in recordings.

Adapter and Site Remapping

ZIF-Clip® headstage adapters enable the use of third party electrodes; however, they do add another layer of complexity when determining which physical site corresponds to each channel number in the data. Remapping the channel numbers to a desired “site map” can simplify the task of interpreting your data.

TDT provides an automated remapping function through SpikePac’s SiteMap macro to ensure that the spatial organization of the electrodes is properly displayed. SiteMap takes into account the pinouts of the electrode as well as those of any adapters to the TDT headstage. RPvdsEx provides support for an arbitrary spatial pattern by use of the MCMMap and DataTable components or input from MATLAB with the use of parameter tags.

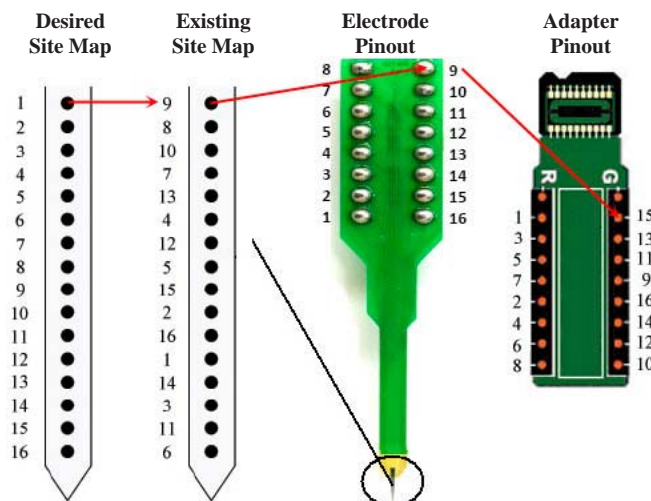
When using the MCMMap method, the remap values are obtained by referencing the electrode and adapter pinouts with the desired site map. The MCMMap component takes hardware based signal inputs and converts them to an arbitrary pattern of channels on the DSP.

All TDT adapters, headstages, and preamplifiers have one-to-one connections, meaning that when connected, the pinouts represent the DSP channels. Unfortunately, the electrode pinout does not necessarily match the adapter pinout.

For example, the ZCA-DIP16 adapter (shown below) does not map directly to the NeuroNexus 16-channel electrode. Further, in the existing site map the channel numbers are not assigned in a logical order.

In the figure below, the desired site map reorders the physical sites from 1 to 16 in terms of spatial depth. Site 1 in the desired site map, is physically connected to pin 9 on the electrode pinout. On the adapter pinout this channel corresponds to the DSP channel number 15. Therefore, the Remap value for channel 1 should be the value 15. The table below represents the final site remapping for the DataTable.

In this example, it is easy to visually make this mapping connection, but in more complex adapter configurations, making a series of tables, mapping from the desired site map to the existing site map and from the adapter to the electrode pinout, can help to organize the information. See the MCMMap component in the RPvdsEx Manual for an example of how to apply your channel map in a circuit using the DataTable component.



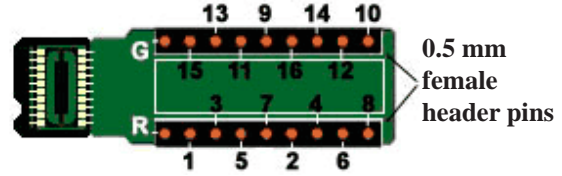
IID Channel Labels	[I1] Remap Value
1	15
2	1
3	13
4	3
5	16
6	2
7	9
8	7
9	12
10	6
11	10
12	8
13	14
14	4
15	11
16	5

ZCA-DIP16

Note: If your headstage adapter is not listed, see the System 3 Manual for additional pinouts and information. All adapter pinouts are looking into the connector and reflect the preamplifier channels.

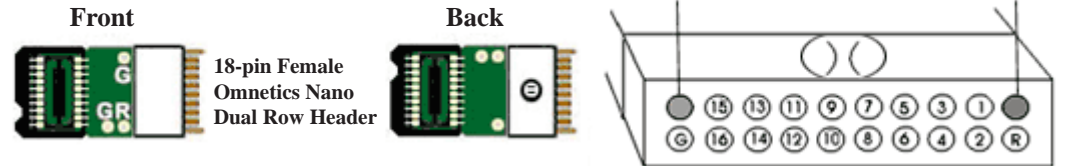
ZCA-DIP16

Input connector: 0.5mm female 18-pin DIP socket
Mates with: 16-channel male DIP-style connectors



The ZCA-DIP16 adapter allows the user to connect a 16-channel acute probe (such as NeuroNexus) to a 16-channel ZIF-Clip® headstage. Ground and reference pins are located on the DIP connector and may be tied together for single-ended operation.

ZCA-OMN16

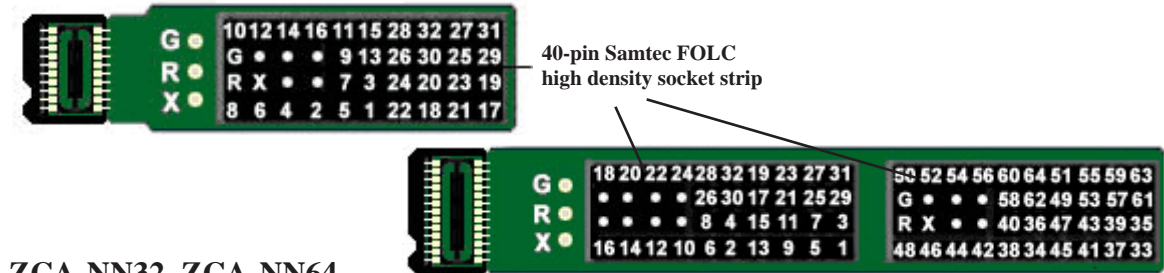


ZCA-OMN16

Input connector: 18-pin female Omnetics nano dual row header
Mates with: 16-channel male Omnetics nano dual row connectors

The ZCA-OMN16 adapter connects a 16-channel chronic Omnetics based probe to a 16-channel ZIF-Clip® headstage. Ground and reference pins may be tied together for single-ended operation.

ZCA-NN32



ZCA-NN32, ZCA-NN64

Input connector: (ZCA-NN32) 40-pin Samtec FOLC high density socket strip
 (ZCA-NN64) 40-pin Samtec FOLC high density socket strip x 2
Mates with: 32-channel male NeuroNexus electrodes, 64-channel male NeuroNexus electrodes

The ZCA-NN32 adapter connects a 32-channel acute NeuroNexus probe to a 32-channel ZIF-Clip® headstage while the ZCA-NN64 adapter connects a 64-channel acute NeuroNexus probe to a 64-channel ZIF-Clip® headstage.

Note: X (Ref) is a reference pin that is connected from the adapter to the probe only. See the jumper configuration below for more information.

Jumper Connections	Operation			
<table border="1"> <tr><td>G</td></tr> <tr><td>R</td></tr> <tr><td>X (Ref)</td></tr> </table>	G	R	X (Ref)	Shorts headstage Ground and Reference inputs together, yielding single-ended amplification of signals relative to ground.
G				
R				
X (Ref)				
<table border="1"> <tr><td>G</td></tr> <tr><td>R</td></tr> <tr><td>X(Ref)</td></tr> </table>	G	R	X(Ref)	Shorts headstage Reference input to the pin labeled X (a low impedance site on the probe) yielding differential amplification of signals relative to the voltage of the X (Ref) site.
G				
R				
X(Ref)				
<table border="1"> <tr><td>G</td></tr> <tr><td>R</td></tr> <tr><td>X (Ref)</td></tr> </table>	G	R	X (Ref)	Headstage Ground and Reference separated and X (Ref) pin is not used, yielding differential amplification of signals relative to the voltage of the Reference.
G				
R				
X (Ref)				

