Probe Adapters

Hardware Reference

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Adapters Overview

Each TDT headstage is designed for use with a particular style of probe. Probe adapters allow each headstage to be used with a wider variety of probes. When using adapters, keep in mind that standard operation (referential vs single ended) varies for acute and chronic preparations and headstages are designed accordingly. When adapting across preparations, carefully note and understand the use of the ground (G) and reference (R) connections provided on each adapter.

AC-CH Acute Headstage to Chronic Probe (16 Channels)

The AC-CH adapter allows the user to connect a 16-channel chronic probe (such as a TDT 16 channel microwire array) to an acute TDT headstage (RA16AC/RA16AC4). Standard operation for chronic preparations is single ended with ground and reference shorted together in the chronic headstage. However, the acute headstage is designed for referential operation. When using the acute headstage with our microwire arrays, short G and R together on the adapter for single ended operation.
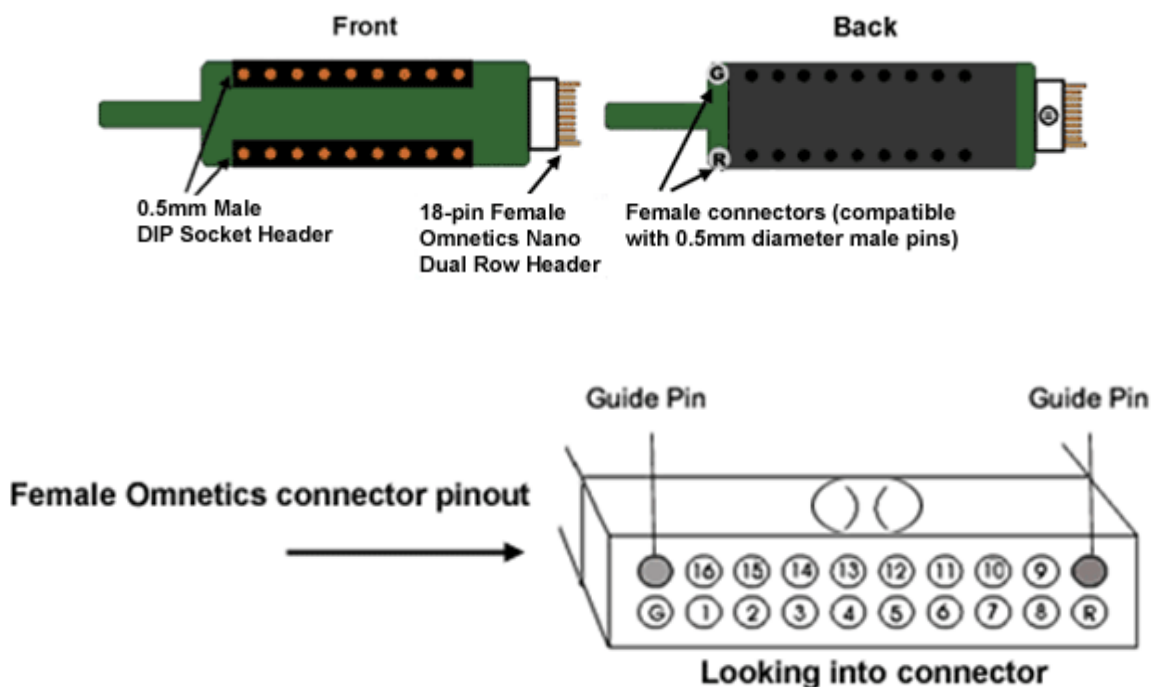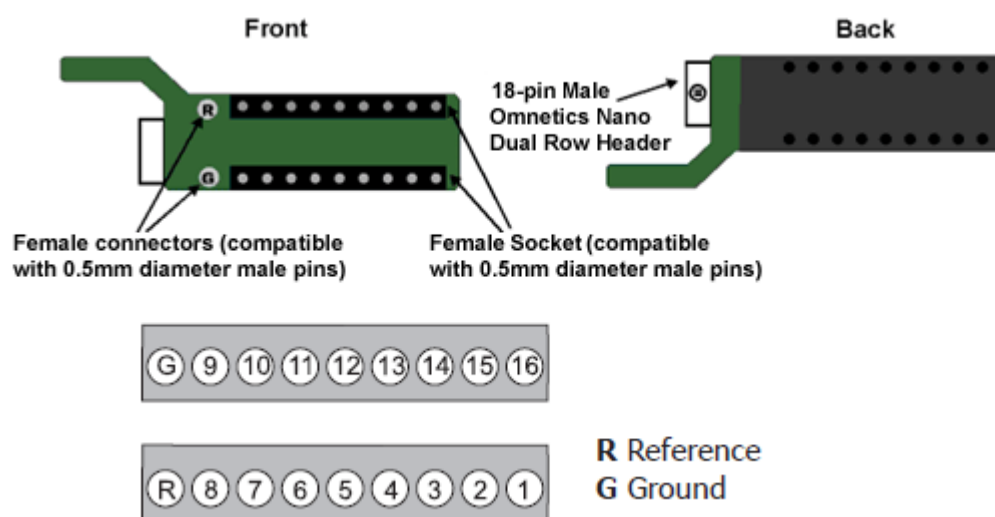

Pinouts are looking into the connector and reflect the preamplifier channels.

TDT probe adapters are designed for specific TDT headstage to probe connections. If you are using a third party headstage, please contact TDT support for assistance.

CH-AC Chronic Headstage to Acute Probe (16 Channels)

The CH-AC adapter connects a 16-channel acute probe to a TDT chronic headstage (RA16CH). Reference and ground are tied together by default on the chronic headstage so in general only one pin connection is necessary. A jumper is provided on the RA16CH for referential operation. See RA16CH/LP16CH/LP16CH-ZNF - 16 Channel Chronic Headstage for more information.
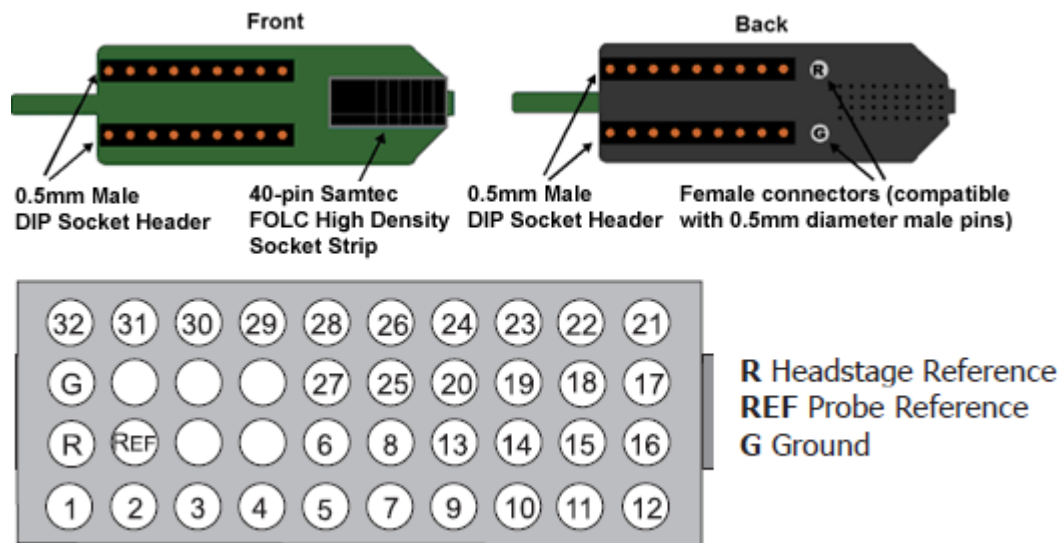

Pinouts are looking into the connector and reflect the preamplifier channels.

TDT probe adapters are designed for specific TDT headstage to probe connections. If you are using a third party headstage, please contact TDT support for assistance.

ACx2-NN 16 Channel Acute Headstage to 32 Channel Acute Probe

The ACx2-NN adapter connects a 32-channel acute NeuroNexus probe to two 16-channel acute TDT headstages (RA16AC/RA16AC4). Standard operation with the NeuroNexus probe is referential. If you wish to use the Reference pad on the probe, do not tie G and R together.

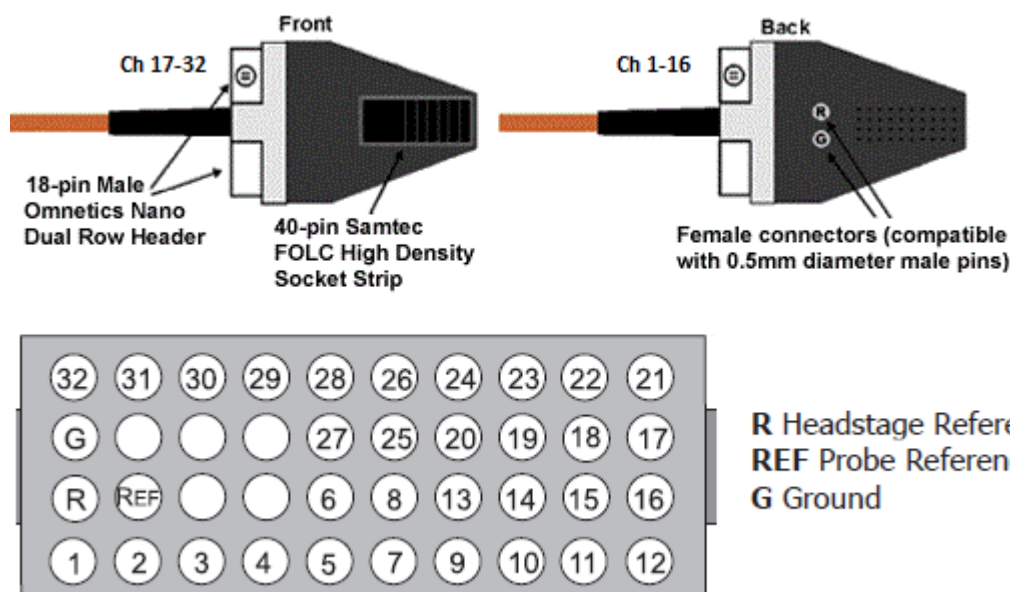*Pinouts are looking into the connector and reflect the preamplifier channels.*

TDT probe adapters are designed for specific TDT headstage to probe connections. If you are using a third party headstage, please contact TDT support for assistance.

> 🔥 **Important**
>
> When using these adapters with NeuroNexus probes, keep in mind that there are several versions of each of the probes. TDTs ACx2-NN is designed for use with Rev 2 of the 32-channel NeuroNexus acute probe. Also see the Channel Mapper gizmo in Synapse for a description and examples on how to re-order channel numbers.

CHx2-NN 16 Channel Chronic Headstage to 32 Channel Acute Probe

The CHx2-NN adapter connects a 32-channel acute NeuroNexus probe to two 16-channel chronic TDT headstages (RA16CH). Connect the first RA16CH headstage (channels 1-16) to the front of the adapter. Connect the second RA16CH (channels 17-32) to the back of the adapter. This adapter also features a holding rod for connection to a micromanipulator. As with the CH-AC adapter, reference and ground are tied together by default on the chronic headstage so in general only one pin connection is necessary. If you wish to use the Reference pad on the probe, do not tie G and R together and cut the jumper on each headstage to make the inputs referential. See RA16CH/LP16CH/LP16CH-ZNF - 16 Channel Chronic Headstage for more information.

Pinouts are looking into the connector and reflect the preamplifier channels.

TDT probe adapters are designed for specific TDT headstage to probe connections. If you are using a third party headstage, please contact TDT support for assistance.

> 🔥 **Important**
>
> When using these adapters with NeuroNexus probes, keep in mind that there are several versions of each of the probes. TDTs CHx2-NN is designed for use with Rev 2 of the 32-channel NeuroNexus acute probe. Check the NeuroNexus website for pin diagrams. Also see the Channel Mapper gizmo in Synapse for a description and examples on how to re-order channel numbers.

nanoZ-OMN/DIP nanoZ™ to Omnetics and DIP Based Probes

The nanoZ-OMN/DIP adapter allows the user to connect an Omnetics or DIP based probe to a nanoZ™ impedance tester. Connectors are labeled on the circuit board for easy identification.

The K1 connector on the bottom of the adapter is used to connect the nanoZ™ to one of the following:

- The **Chronic** connector is a dual row 18-pin Omnetics nano connector that is used with a 16-channel chronic probe, such as a TDT 16-channel microwire array.

- The **OmCon** connector is a dual row 36-pin Omnetics nano connector that is used with a 32-channel chronic probe.

- The **Acute** connector is a 0.5 mm female 18-pin DIP socket that is used with a 16-channel DIP-based probe, such as a 16-channel acute Neuronexus probe.

> 🔥 **Important**
>
> The corresponding channels from each probe connection are tied together, so that channel 1 of the Chronic connector, the OmCon connector, and the Acute connector are all tied to channel 1 of the nanoZ connector. See pinouts below for more detail.
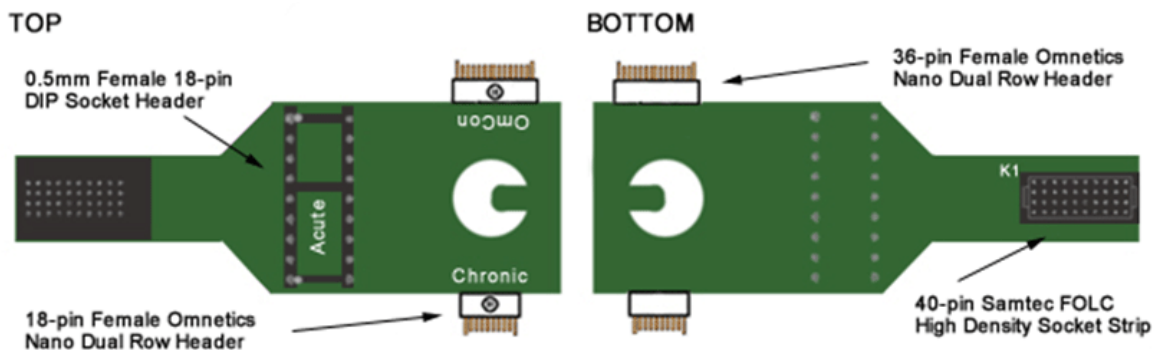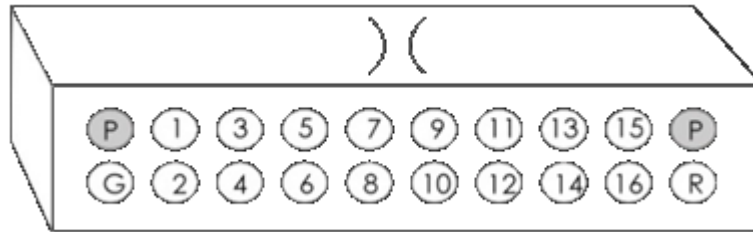

Connecting the Adapter to the nanoZ™

After configuring the nanoZ™ impedance tester as directed in the nanoZ™ User Manual, connect the adapter to the Samtec connector closest to the center, ensuring it is firmly seated. The adapter should cover both nanoZ™ Samtec connectors (as shown below).
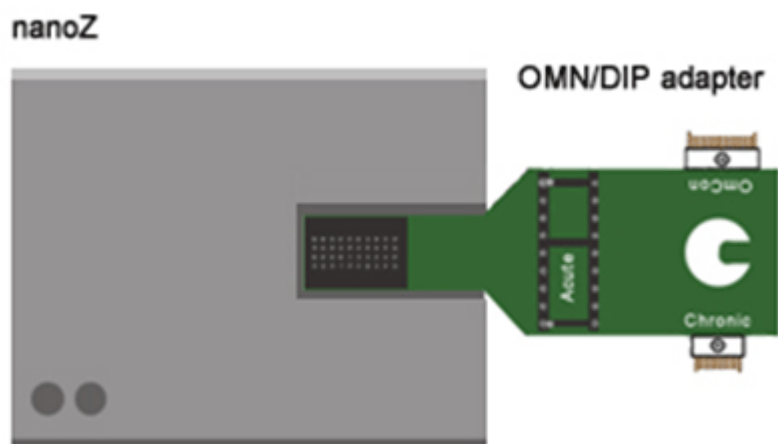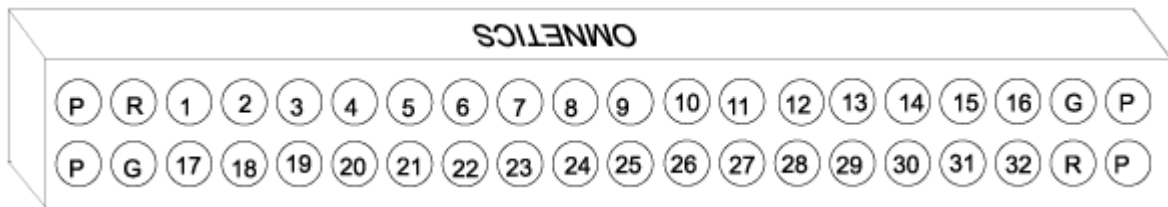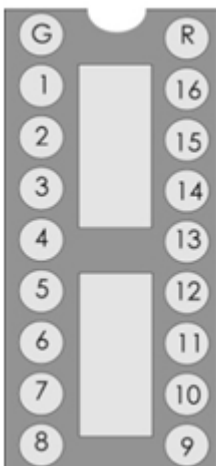
Chronic Pinout

18-pin female Omnetics nano dual row header (pinout looking into the connector)
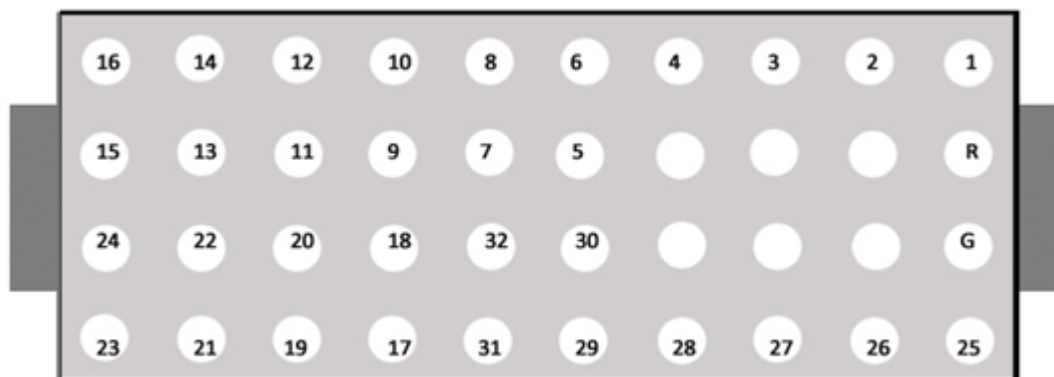
OmCon Pinout

36-pin female Omnetics nano dual row header (pinout looking into the connector)

Acute Pinout

0.5 mm female 18-pin DIP socket header (pinout looking into the connector)

K1 Pinout

40-pin Samtec FOLC high density socket strip (pinout looking into the connector)

nanoZ-ZCA32/ZCA64 nanoZ™ to ZIF-Clip® Probes

The nanoZ-ZCA32 and nanoZ-ZCA64 adapters allow the user to connect a nanoZ™ impedance tester to a 32- or 64-channel ZIF-Clip® probe.

The nanoZ-ZCA32 K1 connector is used to connect the nanoZ™ to a 32-channel chronic probe, such as a TDT 32-channel ZIF-Clip® microwire array.

The nanoZ-ZCA64 K1 and K2 connectors are used to connect the nanoZ™ to a 64-channel chronic probe, such as a TDT 64-channel ZIF-Clip® microwire array.
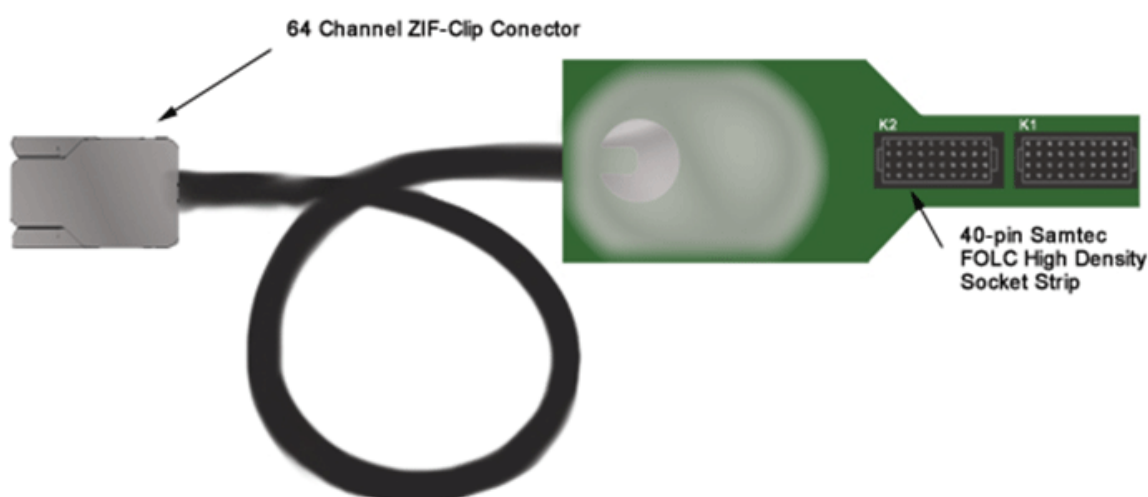
See ZIF-Clip® Analog Headstages for more information on ZIF-Clip® connectors.
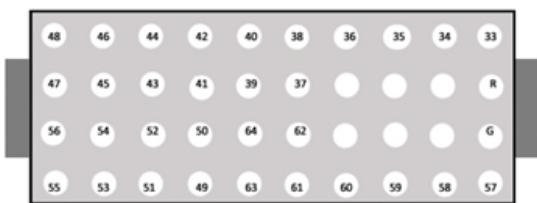
Connecting the Adapter to the nanoZ™

After configuring the nanoZ™ impedance tester as directed in the nanoZ™ User Manual, connect the adapter so that both nanoZ™ Samtec connectors (as shown below). Ensure that it is firmly seated. The nanoZ-ZCA32 should connect to the Samtec connector closest to the center of the nanoZ™.
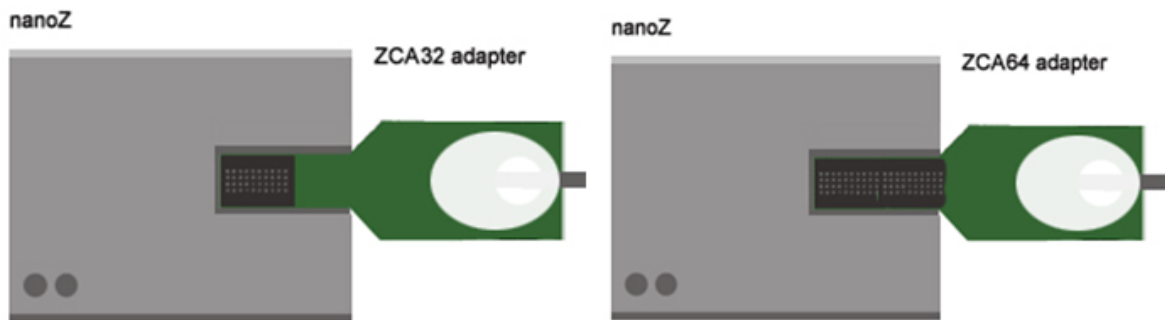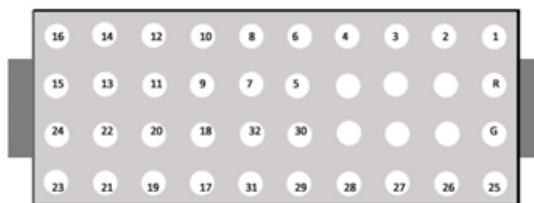

K1 and K2 Pinouts

40-pin Samtec FOLC high density socket strips (pinouts looking into the connector)