



NeuroNexus

Wiring Configuration

Acute Experiments

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Wiring Configuration

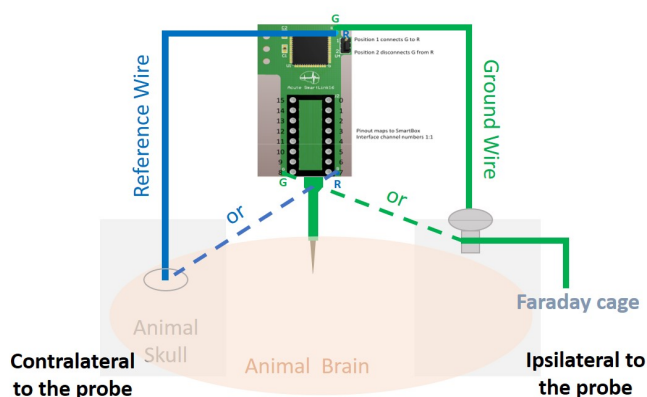
Proper wiring and grounding are essential for obtaining clean and usable signals, maximizing the performance of NeuroNexus probes. This protocol outlines effective strategies for referencing and grounding probes. While the theory is straightforward, practical implementation can be complex. NeuroNexus probes offer multiple wiring options for optimal flexibility. It's crucial to understand these options before placing an animal on the stereotaxic frame, allowing quick adjustments if needed. NeuroNexus has designed probe wiring to accommodate diverse experiments. This section details wiring setups for 16, 32, and 64-channel electrodes. For more information, contact us at support@NeuroNexus.com or visit our website.

Acute 16-channel Electrode

For 16-channel acute electrodes that lack reference and ground wires, unlike chronic micro-electrode arrays, you can choose to solder reference and ground wires to the headstage. The following steps outline the process:

Add a separate reference electrode

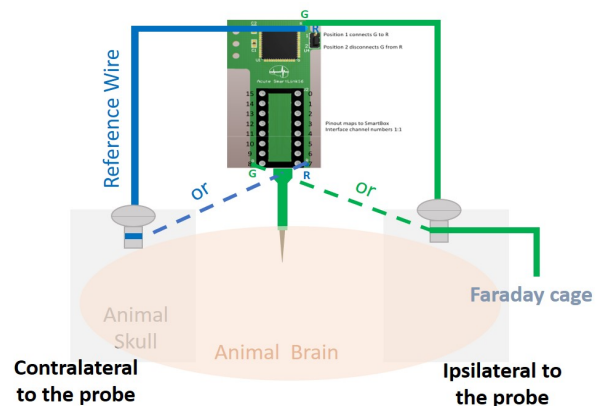
- Perform a craniotomy on the opposite side of the probe.
- Place an Ag/AgCl or stainless steel Reference Wire into the saline-filled craniotomy.
- Connect the Reference Wire to the designated reference holes on the top or bottom of the headstage, as illustrated in the figure.
- Affix a distinct wire as a Ground Wire to the ground hole on the top or bottom of the headstage.
- Establish a connection between the Ground Wire and a bone screw located anywhere on the animal's skull.



Not adding a separate reference electrode

As an alternative, you have the option not to include a separate reference electrode. Follow these steps for this choice:

- Fasten an Ag/AgCl or stainless steel Reference Wire to the reference holes on the top or bottom of the headstage.
- Directly link the Reference Wire to the nearest bone screw adjacent to the implanted probe.
- Attach a distinct wire as a Ground Wire to the ground hole on the top or bottom of the headstage.
- Establish a connection between the Ground Wire and any bone screw on the animal's skull.

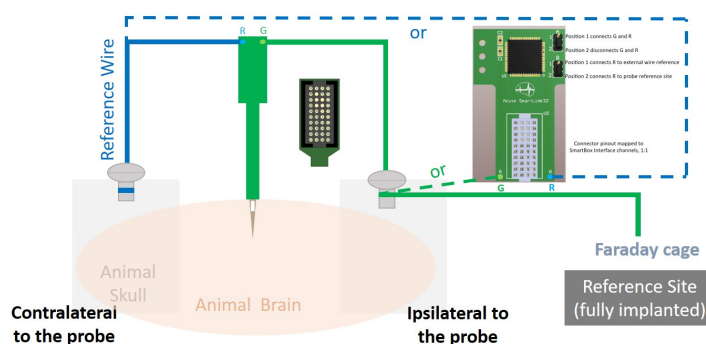


Acute 32-channel Electrode

For a 32-channel electrode with acute characteristics, you have various options for reference and ground wiring configurations, contingent on the presence of an internal reference site on the probe:

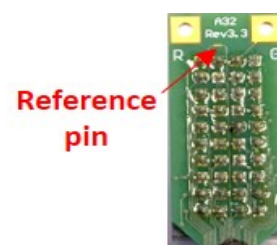
Using the internal reference site

- If the probe features an internal reference site, connect a wire from the A32 connector or A32 headstage to the bone screw. This establishes a reference connection.
- Attach a distinct wire as a Ground Wire to the ground hole on the top of the probe connector or the bottom of the headstage. Connect this wire to the bone screw on the animal skull to ensure proper grounding.



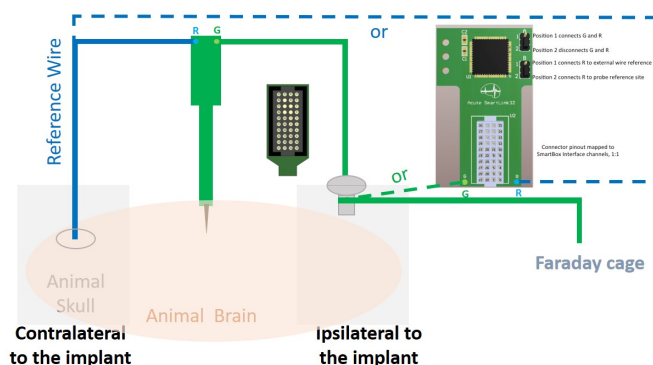
Disabling the internal reference site

- Locate the reference pin in the A32 connector, positioned above the second column of pins, indicating an exposed horizontal trace.
- To deactivate the reference site, meticulously cut the reference trace using a razor or a similar tool.



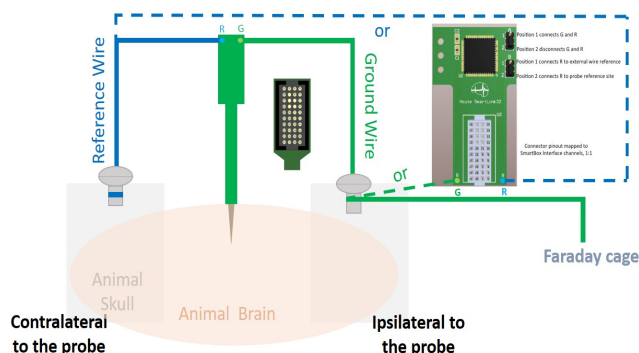
Adding a reference electrode

- If the probe lacks a reference site or after deactivating it, establish a small craniotomy near the implant side.
- Insert an Ag/AgCl or stainless steel Reference Wire into the saline-filled craniotomy. Connect this wire to the reference holes on the top of the probe connector or the bottom of the headstage.
- Attach a distinct wire as a Ground Wire to the ground hole on the top of the probe connector or the bottom of the headstage. Connect this wire to the bone screw anywhere on the animal skull.



Simple setup

- After deactivating the reference site or if your electrode lacks one, link an Ag/AgCl or stainless steel Reference Wire from the Reference holes on the top or bottom of the headstage directly to the bone screw closest to the implantation site.
- Attach a separate wire as a Ground Wire to the Ground hole on the top or bottom of the headstage. Connect this wire to any bone screw on the animal skull.
- These wiring configurations will ensure proper reference and grounding for your 32-channel acute electrode setup.

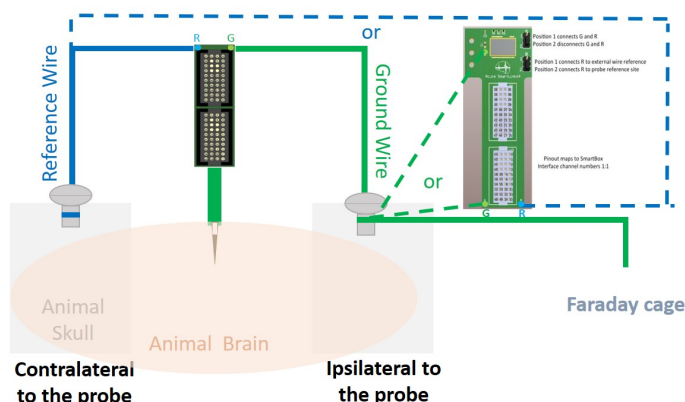


Acute 64-channel Electrode

For a 64-channel acute electrode, you have various options for reference and ground wiring configurations depending on whether the probe has an internal reference site:

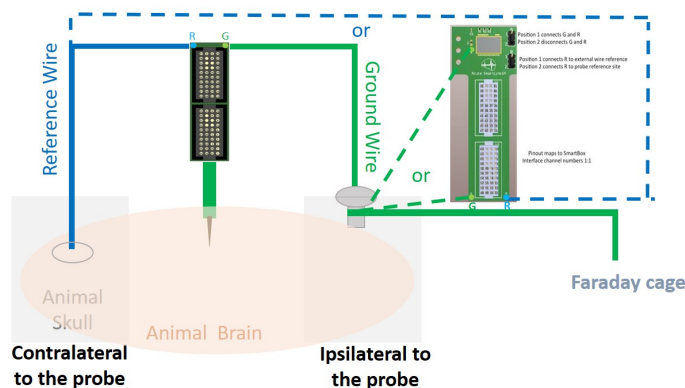
Using the internal reference site

- If the probe has an internal reference site, connect a wire from the A64 connector or A64 headstage to the nearest bone screw to the implanted probe. This establishes a reference connection.
- Attach a separate wire as a Ground Wire to the ground hole on the top of the probe connector or the bottom of the headstage. Connect this wire to any bone screw on the animal skull.



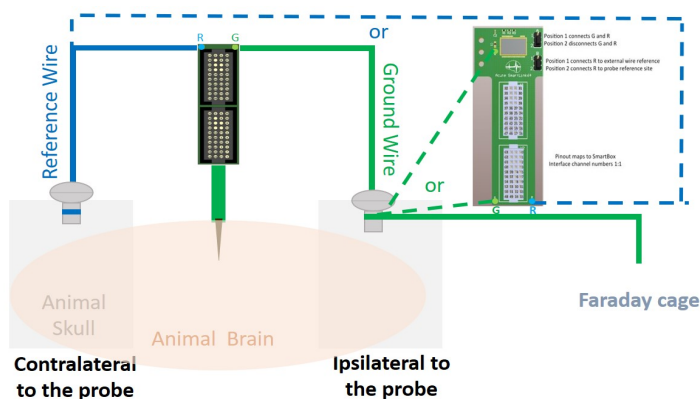
Adding a reference electrode

- If the electrode lacks a reference site on the probe, establish a small craniotomy near the implantation site.
- Connect a wire from the A64 connector or A64 headstage to the bone screw in the craniotomy. This wire functions as the reference connection.
- Attach a separate wire as a Ground Wire to the ground hole on the top of the probe connector or the bottom of the headstage. Connect this wire to any bone screw on the animal skull.



Simple Setup

- If the electrode lacks a reference site on the probe, connect a wire from the A64 connector or A64 headstage directly to the bone screw near the implantation site. This wire serves as the reference connection.
- Attach a separate wire as a Ground Wire to the ground hole on the top of the probe connector or the bottom of the headstage. Connect this wire to any bone screw on the animal skull.



These wiring configurations will aid in establishing proper reference and grounding connections for your 64-channel acute electrode setup.