



NeuroNexus

Wiring Configuration

Acute Experiments

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Wiring Configuration

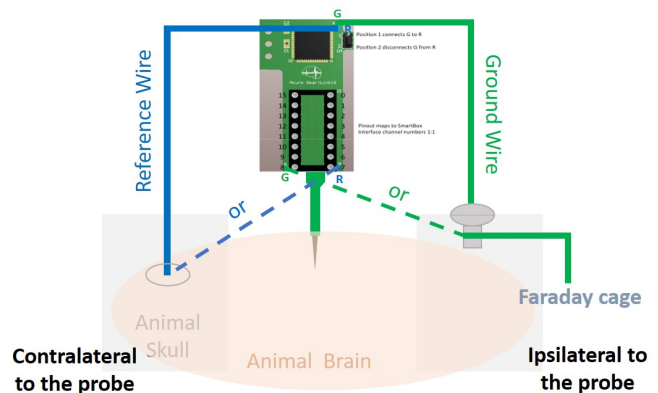
Proper wiring and grounding is critical in capturing clean usable signals as well as obtaining the maximum performance from your NeuroNexus probes. In this protocol we will describe some strategies for effective probe referencing and grounding. While relatively simple in theory, referencing and grounding could be complicated in practice, which is why NeuroNexus probes offer multiple wiring options to help you find an optimal solution. Understanding your options before placing an animal on the stereotaxic frame can help you respond quickly in case your wiring setup needs to be adjusted. Since experiments can be unpredictable, NeuroNexus has built flexibility into our probe wiring. Here we explain the wiring setup for 16, 32, and 64 channel count electrodes. For more information contact us at support@NeuroNexus.com or visit www.NeuroNexus.com.

Acute 16-channel Electrode

NeuroNexus 16-ch acute electrodes do not have reference and ground wires like the chronic microelectrode arrays. However, Reference and Ground Wires may be soldered to the headstage.

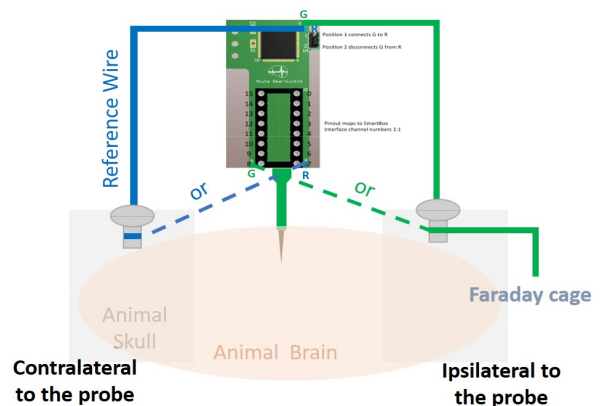
Add a separate reference electrode

Make a craniotomy on the contralateral to the probe and insert Ag/AgCl, or stainless steel Reference Wire into the craniotomy filled with saline and attach it to the reference holes on the top or the bottom of the headstage as shown in the figure. Attach a separate wire as a Ground Wire to the ground hole on the top or the bottom of the headstage and then connect it to the bone screw on the ipsilateral to the probe and Faraday cage.



Do not add a separate reference electrode

Attach Ag/AgCl, or stainless steel Reference Wire to the reference holes on the top or the bottom of the headstage and connect it directly to the bone screw on the contralateral to the probe. Attach a separate wire as a Ground Wire to the ground hole on the top or the bottom of the headstage and then connect it to the bone screw on the ipsilateral to the probe and Faraday cage.

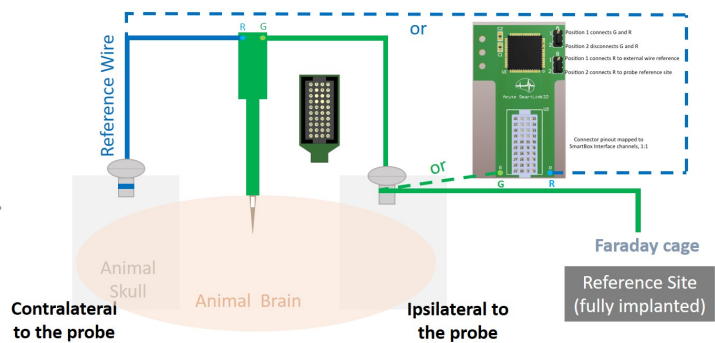


Acute 32-channel Electrode

Some acute probes with 32 or more channels include an internal reference site on the probe shank that allow researchers to customize reference and ground wiring configurations for their application.

Using the internal reference site

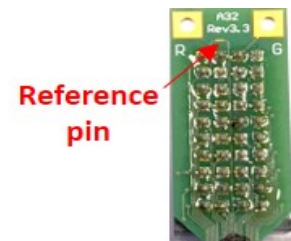
If the 32-ch probe has the reference site, attach a wire from A32 connector or A32 headstage to the bone screw. Attach a separate wire as a Ground Wire to the ground hole on the top of probe connector or the bottom of the headstage and then connect it to the bone screw on the ipsilateral to the probe and Faraday cage.



Disabling the internal reference site

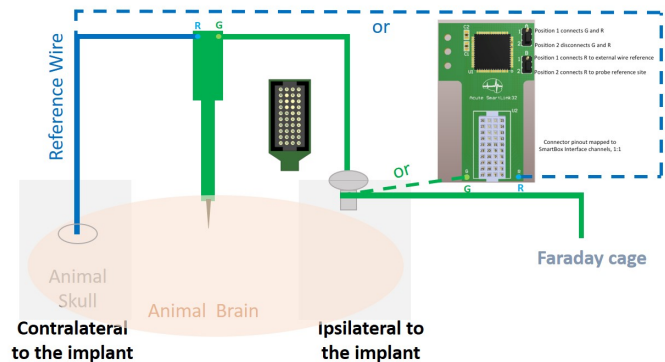
There is only one reference pin in A32 connector that is located above the second column of pins for an exposed horizontal trace, and right below the "e" in Rev3.3 that is shown in the picture.

To disable the reference site, cut the reference trace with a razor.



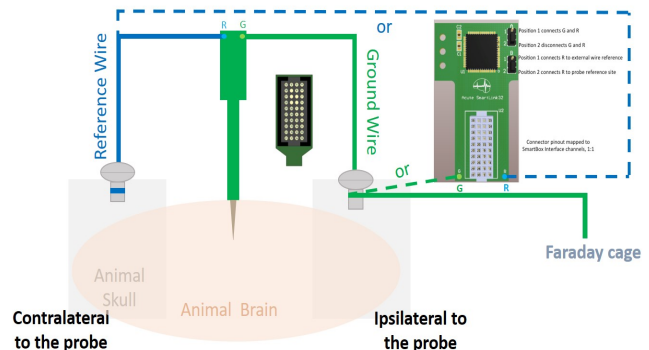
Add a reference electrode

After disabling the reference site on your probe (as explained above), or if your electrode doesn't have a Reference Site on the probe, make a small craniotomy on contralateral to the probe and insert Ag/AgCl, or stainless steel Reference Wire into the craniotomy filled with saline and attach it to the reference holes on the top of the probe connector or the bottom of the headstage as shown below. Attach a separate wire as a Ground Wire to the ground hole on the top of probe connector or the bottom of the headstage and then connect it to the bone screw on the ipsilateral of the probe and Faraday cage.



Simple setup

After disabling the reference site on your probe (as explained above), or if your electrode doesn't have a Reference Site on the probe, connect an Ag/AgCl, or stainless steel Reference Wire from the Reference holes on the top or the bottom of the headstage directly to the bone screw on the contralateral of the probe. Attach a separate wire as a Ground Wire to the Ground hole on the top or the bottom of the headstage and then connect it to the bone screw on the ipsilateral to the probe and Faraday cage.

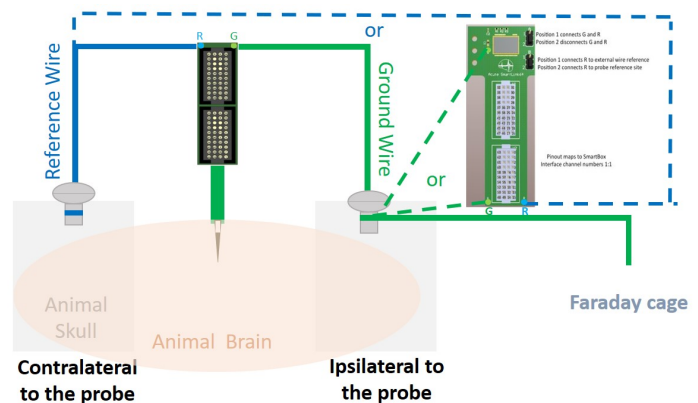


Acute 64-channel Electrode

Some acute probes with 64 or more channels include an internal reference site on the probe shank that allow researchers to customize reference and ground wiring configurations for their application.

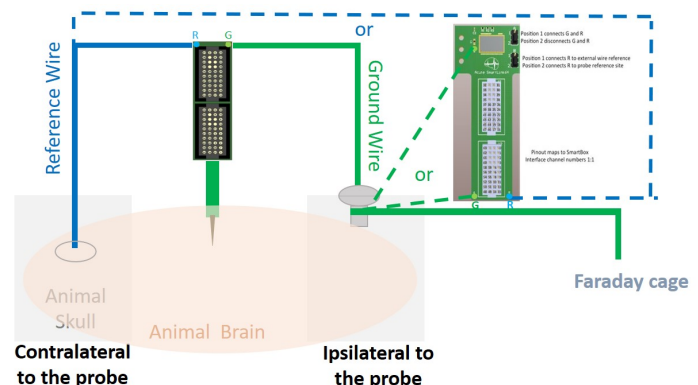
Using the internal reference site

If the 64-ch probe has the reference site, attach a wire from A64 connector or A64 headstage to the bone screw on the contralateral to the probe. Attach a separate wire as a ground wire to the ground hole on the top of probe connector or the bottom of the headstage and then connect it to the bone screw on the ipsilateral to the probe and Faraday cage.



Adding a reference electrode

If your electrode doesn't have a reference site on the probe, make a small craniotomy on the skull and attach a wire from A64 connector or A64 headstage to the bone screw. Attach a separate wire as a Ground Wire to the Ground hole on the top of probe connector or the bottom of the headstage and then connect it to the bone screw on the ipsilateral to the probe and Faraday cage.



Simple Setup

If your electrode doesn't have a reference site on the probe, attach a wire from A64 connector or A64 headstage to the bone screw to the contralateral of the probe. Attach a separate wire as a Ground Wire to the Ground hole on the top of probe connector or the bottom of the headstage and then connect it to the bone screw on the ipsilateral of the probe and Faraday cage.

