



INSTRUCTIONS FOR USE: microECoG

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1. PURPOSE

The Diagnostic Biochips (DBC) microECoG arrays are intended for acute and chronic recording from the surface of the brain. The ultra-thin microECoG array (Figure 1) is designed to conform to the brain contour and create stable, intimate contact with the underlying neurons. Just like our penetrating probes, the recording sites are designed for high spatial resolution field and action potential recording in a variety of animal models.

DBC's microECoG arrays are integrated with Intan pre-amplifier chips. The proximity of the pre-amplifier relative to the recording microelectrodes reduces ambient interference. This integration technique is also key to minimize size and weight (less than 1 gram for a 128-channel probe), which are critical for freely behaving experiments using small animals.

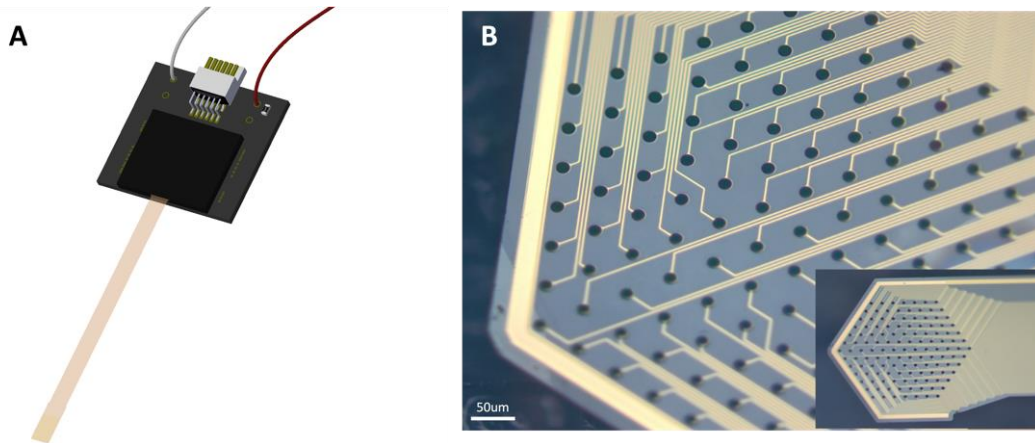


Figure 1: Diagnostic Biochips microECoG array.

A) rendering showing a 128-channel microECoG assembly. B) Microscope view showing 128 high-density microelectrodes (Black).

NOTE – photograph shows a beta electrode design that is not included in our current catalog. Please reach out to our sales team if you are interested in this design.

Contraindications: The DBC microECoG arrays are not medical devices and should not be used in human.

This Instruction for Use applies only to **64 channel and 128 channel microECoG**

64 Channel microECoG	128 Channel microECoG
G64-6-1C	G128-1-1C

2. INSTRUCTIONS

2.1. HANDLING INSTRUCTIONS

It is important to avoid handling the thin-film cable. Users are advised to manipulate the probe by holding onto the printed circuit board (black). Chronic probes are typically mounted on a microdrive (not shown) that allows post-implant manipulation of recording depth. If you have questions related to microdrive options, please contact our sales team.

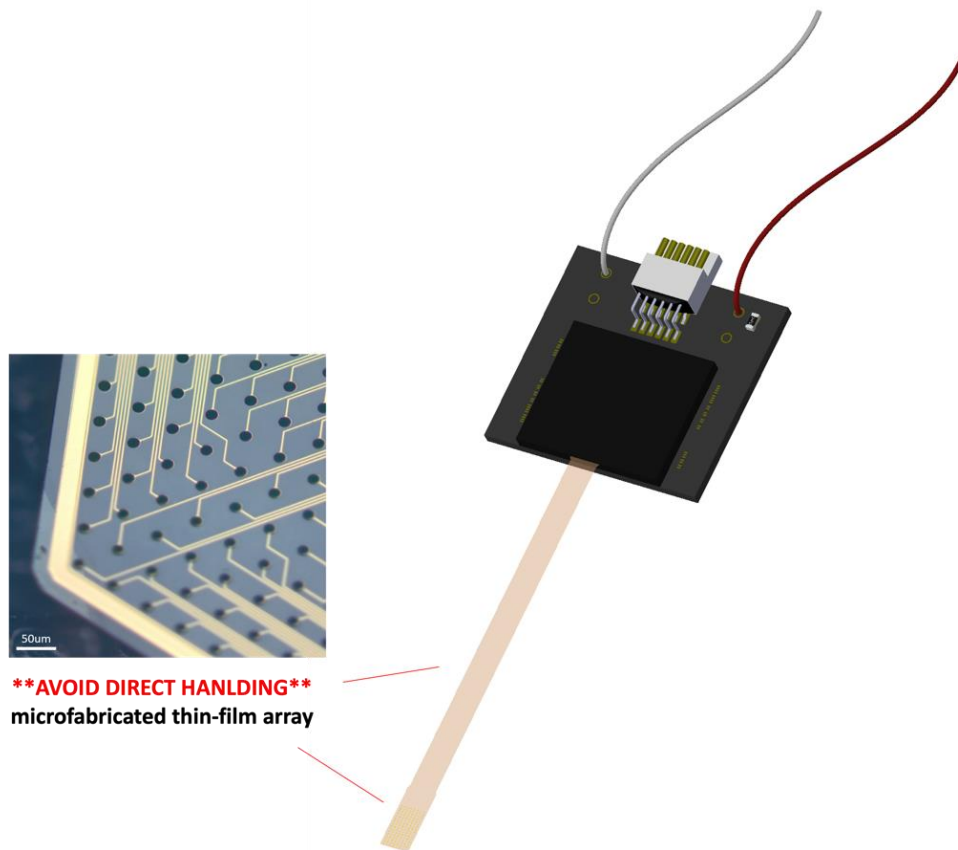


Figure 2: MicroECoG (128-channel).



2.2. ELECTRICAL CONNECTIONS

DBC 64- and 128-channel microECoG arrays are compatible with any acquisition systems that can read from an Intan RHD chip. Because the data is multiplexed and digitized on board, only a 12-pin SPI cable is needed to connect directly from the 128-channel probe to an acquisition system (**no headstage required**). The ground and reference connections are electrically shorted by default unless otherwise instructed on the purchase order. If you have question on how to connect your probe to a particular acquisition system, please contact our sales team.

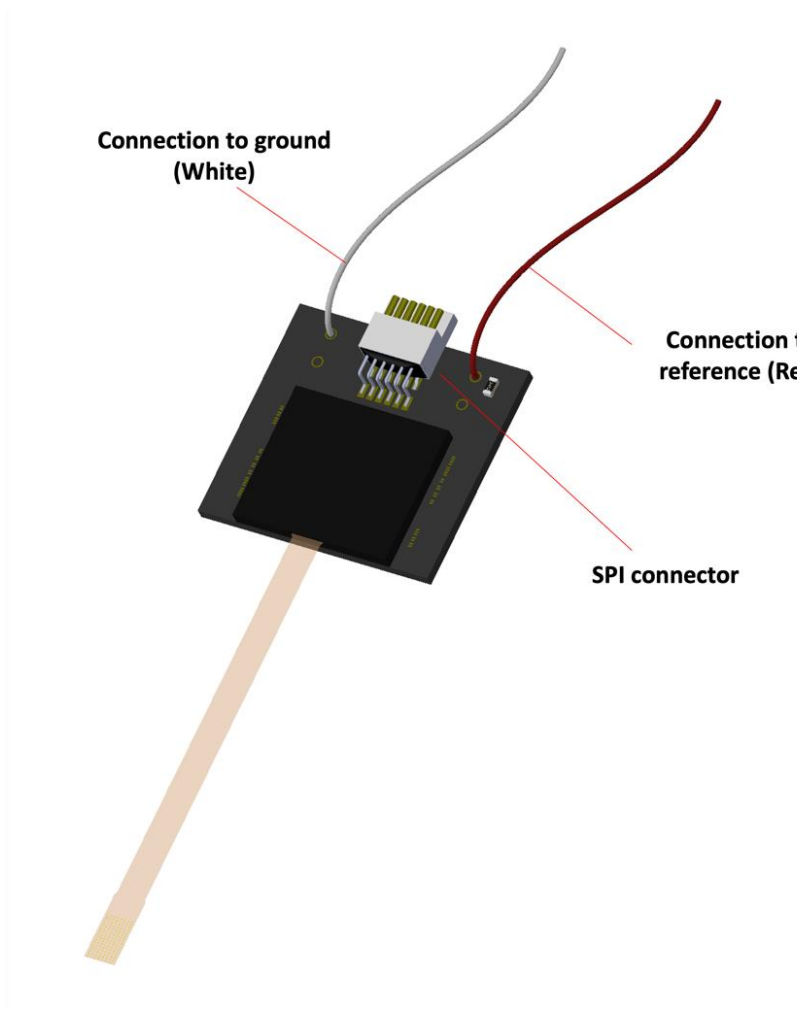
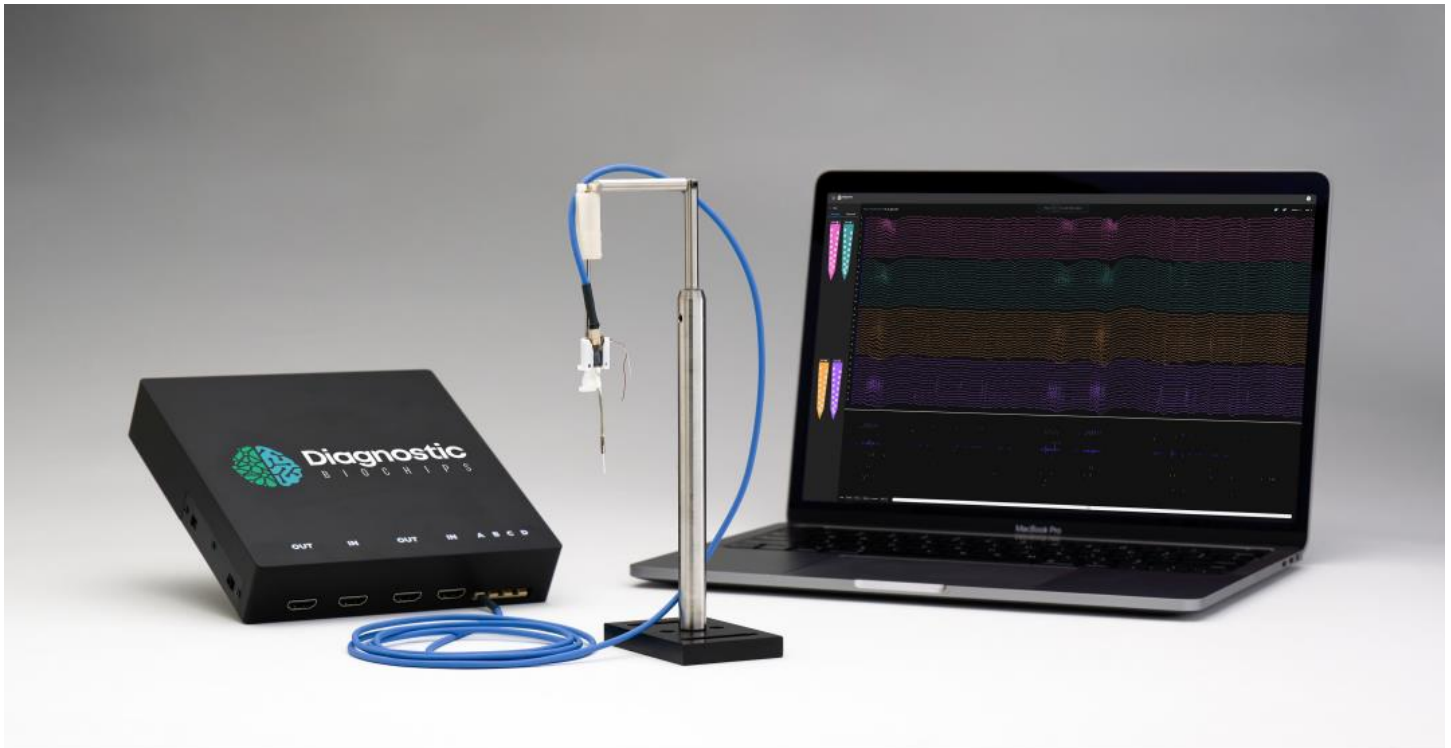


Figure 3: DBC microECoG arrays can be directly connected to an acquisition system without an headstage.

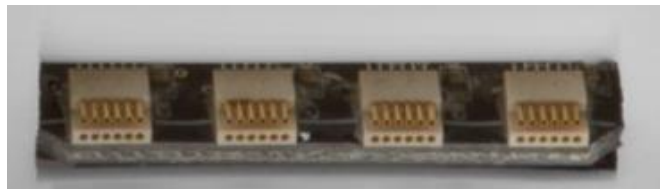


3. DATA ACQUISITION AND CLOUD COMPUTING

DBC provides an acquisition system powered by the [Open-Ephys](#) system. The following is a brief outline of how to connect the headstage to the acquisition system. For more detailed information, please see this [documentation](#).



1. Connect Data Acquisition Box to 5V DC power.
2. Connect Data Acquisition Box to a computer using provided USB cable.
3. Connect probe to Data Acquisition Box via SPI cable to any of the four SPI ports.



4. Open opeEphys GUI, which can be downloaded at <https://open-ephys.org/gui>
Please follow documented instructions on how to start recording.
5. For on-cloud data management, spikesorting, curation, and sharing, please contact us.