



# INSTRUCTIONS FOR USE: SILICON PROBE (CHRONIC, 16/32 CHAN)

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## 1. PURPOSE

The Diagnostic Biochips (DBC) silicon probes are intended for acute (not discussed in this document) and chronic neural recordings. By utilizing state-of-art, microfabrication technologies, the DBC probes (**Figure 1**) are designed with minimally invasive probe shank(s), carrying a high-density array of microelectrodes that can record hundreds of well isolated single-units and local field potentials in small, behaving animals.

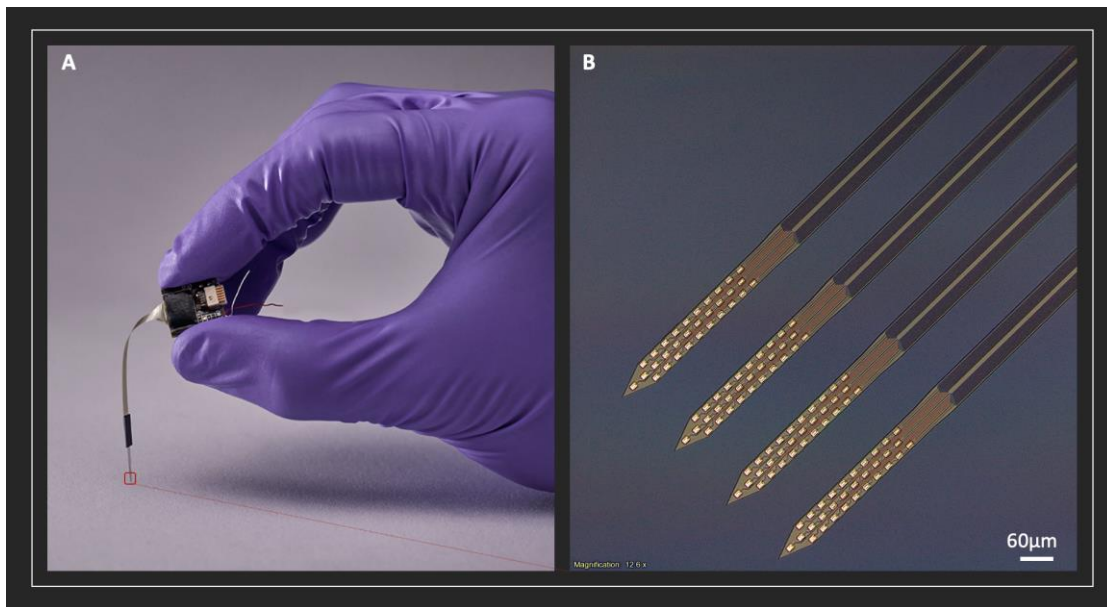


Figure 1: Diagnostic Biochips silicon probe. A) photo showing a 128-channel probe assembly. B) Microscope view of the probe tip showing 128 high-density microelectrodes (gold).

**Contraindications:** The DBC silicon probes are not medical devices and should not be used in human.



This Instruction for Use applies only to **16 channel and 32 channel silicon probes for chronic recording.**

<b>16 Channel Silicon Probes</b>	<b>32 Channel Silicon Probes</b>
P16-1-1C6	P32-1-1C6
P16-1-1C9	P32-1-1C9
P16-2-1C6	P32-2-1C6
P16-2-1C9	P32-2-1C9
	P32-3-1C
	P32-5-1C
	P32-6-1C
	P32-7-1C
	P32-8-1C
	P32-10-1C



## 2. INSTRUCTIONS

### 2.1. HANDLING INSTRUCTIONS

It is important to avoid handling the silicon component at the distal end. 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.

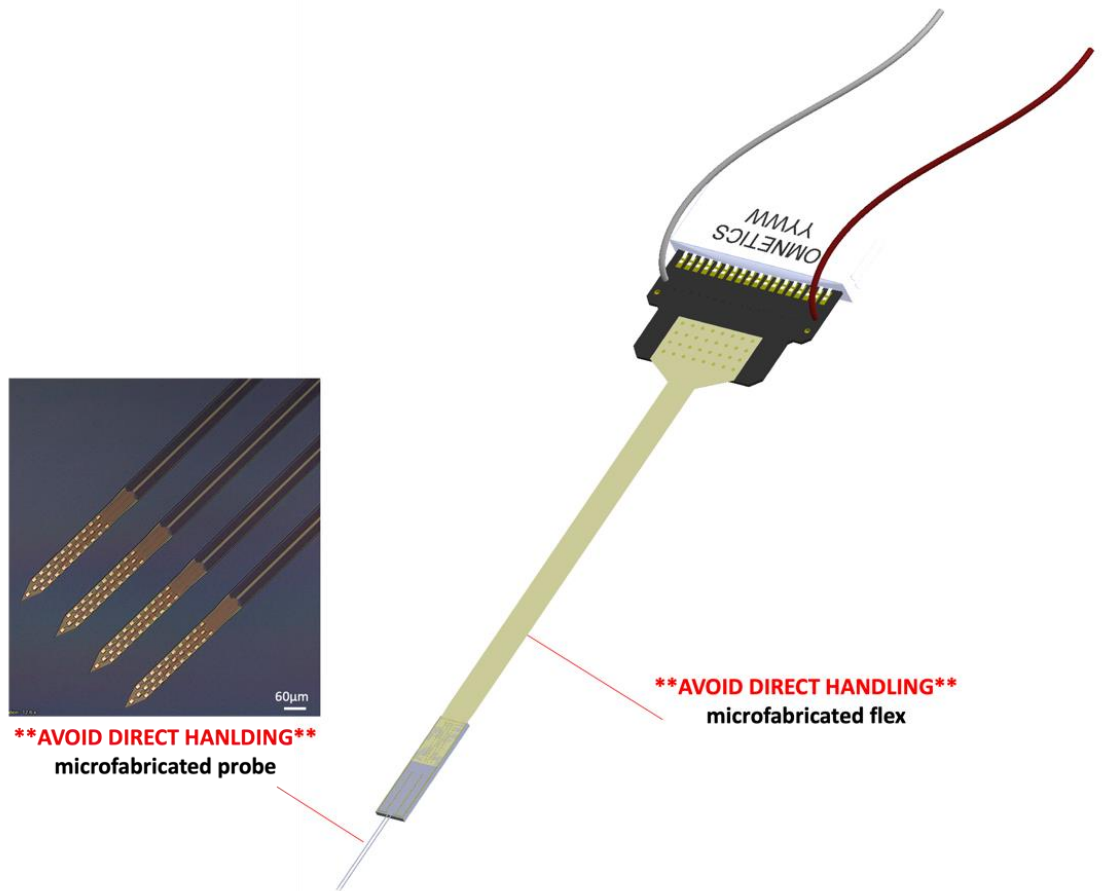


Figure 2: Silicon probe assembled in the chronic format.

## 2.2. ELECTRICAL CONNECTIONS

DBC 16- and 32-channel chronic silicon probes are compatible with all data acquisition systems. If you have question on how to connect your probe to a particular acquisition system, please contact our sales team. Note that the channel mapping from the recording electrodes to the acquisition software depends on the adaptor and headstage used.

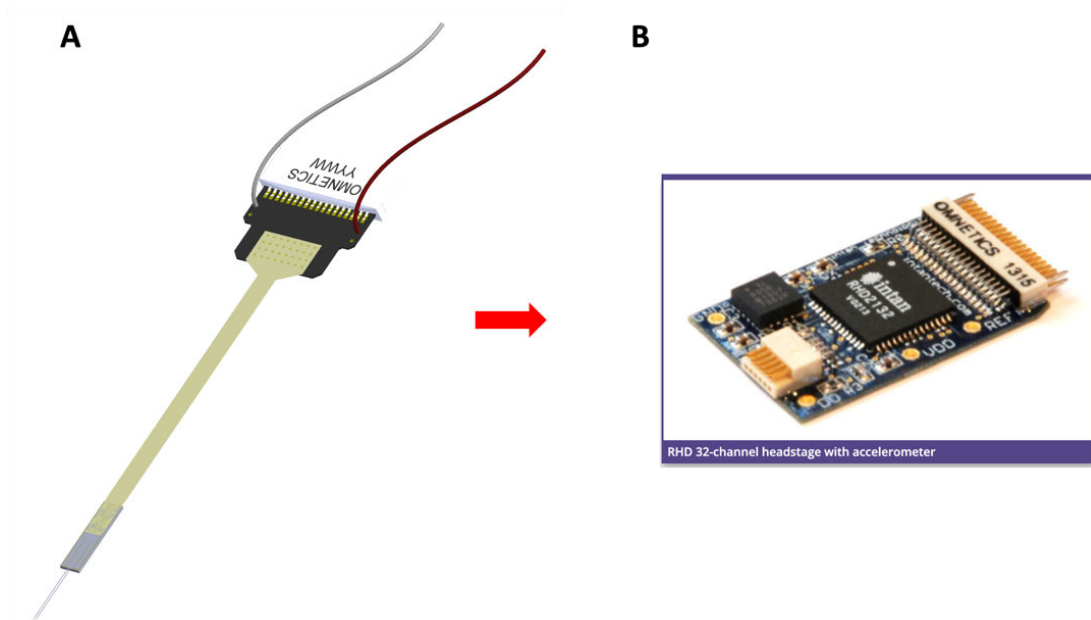
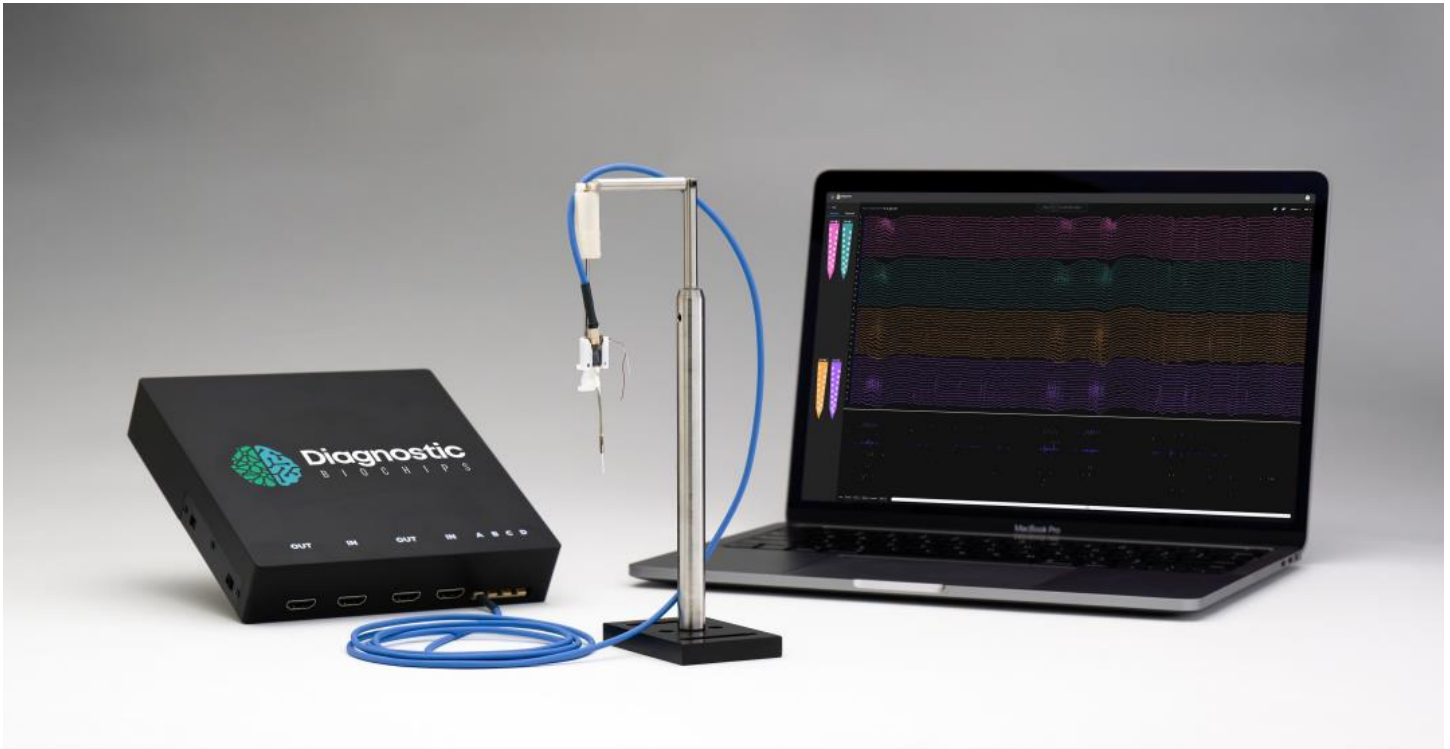


Figure 3: A typical headstage (pre-amplifier) used to connect a 32-channel probe to the acquisition system. A) DBC 32-channel acute silicon probe; B) [Intan 32-channel headstage](#).

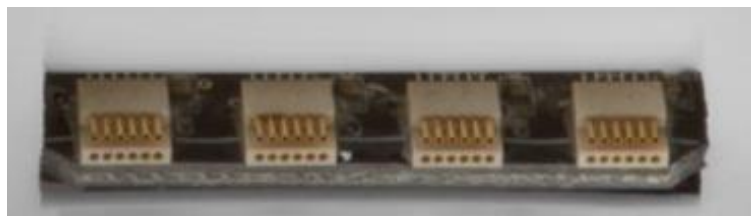


### 3. DATA ACQUISITION AND CLOUD COMPUTING

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 DBC us.