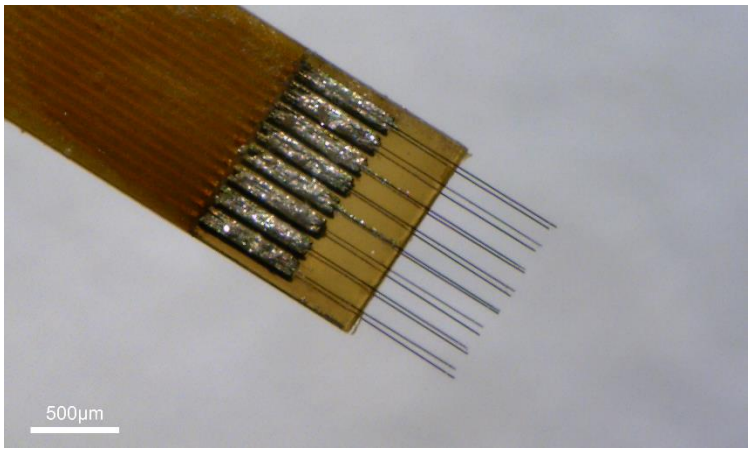
Flex Array v4



Flex Array

Features

- **3mm shank length.**
- 16 carbon fiber electrodes arranged in two rows of 8.
    - 132µm pitch between fibers within the same row.
    - 50µm between rows of fibers.
    - Fiber length can be cut between 150 – 500µm.
- Electrode tips are prepared through the electrodeposition of conductive materials at the tip for spatially targeted electrophysiology recordings.
- 36-pin Omnetics connector for interfacing.
- Reference and ground wires are 50mm long Teflon coated silver wire (AWG 36) with 20mm exposed at the end.

Description

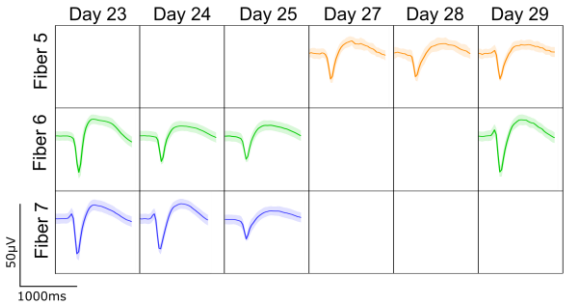
The flex array utilizes subcellular carbon fibers for electrophysiological recordings. The polyimide substrate minimizes the overall size of the device. Groups have used the devices to record electrical activity from rodent nerves, feline dorsal root ganglia, dragonfly nerve cord, and aplysia ganglia. The channels are accessed through a 36-pin Omnetics connector and works with most recording systems on the market.

Recording System Compatibility

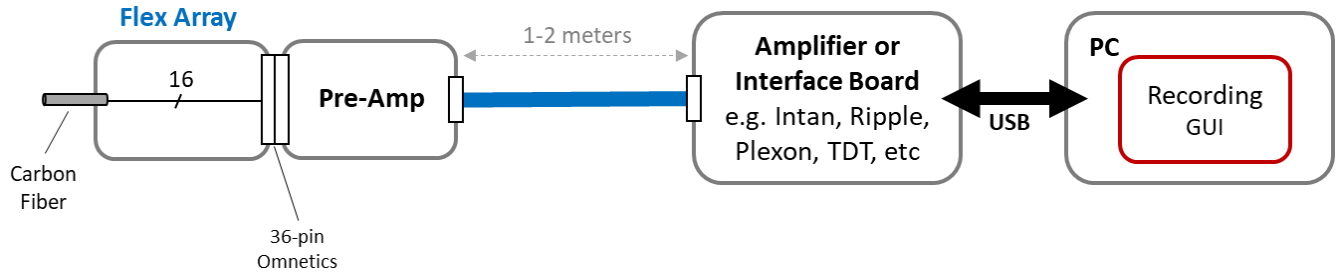
Pre-amplifiers are required to ensure low-noise and are widely available. Any 36-pin Omnetics male headstage is compatible with the flex array. All testing to date has used an Intan RHD2132 amplifier board (www.intantech.com). Also any other amplifier board with this connector would work including products from Ripple, TDT, Plexon, Neuralynx, Triangle Biosystems, etc.

Applications

- Acute recordings of electrophysiological activity in anesthetized animals.
- Chronic recordings of electrophysiological activity in awake animals.



Typical System Configuration – Electrophysiology



Description

The flex array can be used to sense electrical activity using commercially available headstages. Internally we use an Intan RHD2132 pre-amp headstage and RHD2000 interface board. We recognize many labs use other commercial systems and software. Please contact us to discuss your application.

References

- P. Patel, et al., "Carbon Fiber Electrode Array for the Detection of Electrophysiological and Dopaminergic Activity," *Electrochemical Society*, National Harbor MD, 2017.
- P. Patel, et al., "Chronic In Vivo Stability Assessment of Carbon Fiber Microelectrode Arrays," *Journal of Neural Engineering*, vol. 13, pp. 066002, 2016.