PRODUCT SPECIFICATIONS

Product: Connector for VEG 4X1™ chip

Catalog #: VEG 4X1™ Connector

Description: 1 yellow lead with alligator clip and eight leads attached directly to the white eight pin connector;

Special shipping requirements: None

Precautions: None

Figure 2. Digital photo (top) of the **VEG** 4X1™ Connector and the **VEG** 4X1™chip.

Directions:

A. How to access electrodes in the cavities on the chip:

1) Lead to Top layer gold---has alligator clip at one end that is attached to the upper portion of the chip

2) Cavity electrodes

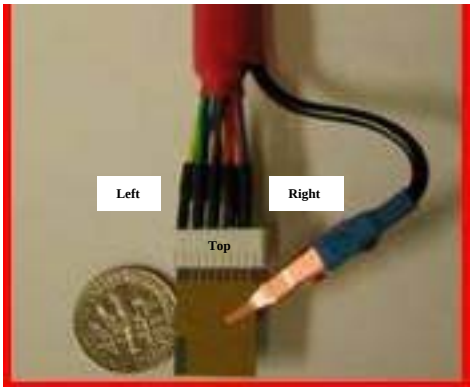
Cavity #:

1: RMD1—top right
TNB 1-bottom right

2: RMD 2-left of RMD 1 lead
TNB 2-left of TNB 1 lead

3: RMD 3-left of RMD 2 lead
TNB 3-left of TNB 2 lead

4: RMD 4-left of RMD 3 lead
TNB 4-left of TNB 3 lead



B. How to clean the chip

1) Remove chip from original container using a pair of tweezers. Use gloves when handling the chip in order to prevent skin grease from getting on the chip which can block the cavities.
2) Air dry the chip surface using N_2 gas.
3) Insert into the connector with gold layer facing the "Top" label on the connector.
4) Insert a shim stock between the bottom of the chip and the connector to keep a tight contact between the connector and the chip.
5) Attach to the potentiostat leads either in a three electrode set-up or a two electrode setup.
    a) In a three electrode setup using external electrodes, you can use the individual electrodes in the microcavities as your working electrode and external reference (for example Ag/AgCl) and counter electrodes (for example Pt).
    b) In a three electrode setup using internal electrodes, use the top layer as auxiliary, the bottom as reference, and the middle layer electrode as working electrode.
    c) In a two electrode setup using the internal electrodes, use the top as pseudoreference/auxiliary electrode and either the middle layer or bottom layer electrode as working electrode.
6) Test the electrodes with 4 mM $K_3Fe(CN)_6$ in 0.1 M KCl to generate the signal similar to what was provided in the package. Alternatively, you can use any electroactive species to characterize the electrodes in the cavities. The cavities are located at the bottom part of the chip and can be seen at the right corner of the intersection as shown in this diagram. 
7) If no signals are generated from any or all of the electrodes, sonicate the chip in 5 mL ethanol for 30 s. Blow dry the chip as in step 2 and perform either step 6 or 7.
8) Alternatively, you can use ethanol, acetone, or isopropyl alcohol for 30 s sonication to regenerate the electrodes. You can sonicate for 30 s more than once (4 times max) with at least 5 s interval between sonication. DO NOT SONICATE CONTINUOUSLY FOR MORE THAN 30s.

NOTE:
Characterization of this chip was done in a two-electrode setup using Cyclic voltammetry at 100 mV/s at a maximum potential window from 0.3 to -0.4 V.