

## SEP1: biotIP® multiple sensing electrode platform.

Fabricated using optimised PCB manufacturing techniques enabling excellent reproducibility and sensing electrode surface characteristics far superior in comparison to screen printed technology. This chip comprises of 4 separate 3-electrode cells (including working, counter and reference gold electrodes) enabling multiple sensing experiments in parallel. The chip employs a robust PCIe type slot electrical connection, to any external instrument of choice (e.g. potentiostat) along with our specifically designed connector, biotIP® SEP3.

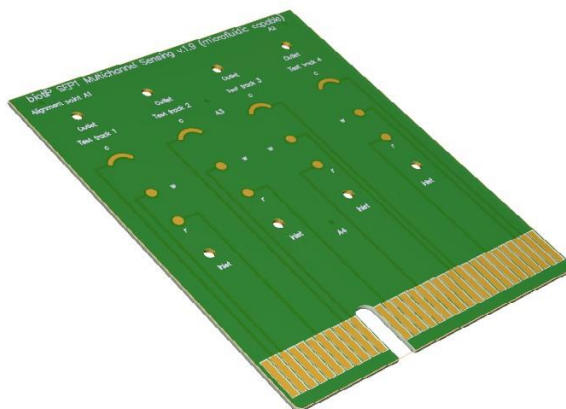


Figure 1: biotIP® multiple sensing electrode platform.

Highly reproducible surface characteristics of our sensing electrodes enables them to be successfully employed for various uses demanding assay implementation, such as self-assembled monolayer (SAM) assisted biomolecule immobilization.

Featuring excellent reproducibility, effortless connectivity and verified compatibility with advanced surface chemistries (e.g. SAM formation) biotIP® SEP1 multichannel sensing platforms are ideal for use across a breadth of R&D applications in various fields such as:

- Electrochemistry
- Microfluidics
- Chemical sensing
- Biosensing

Along with its platforms, biotIP offers its developed sensing electrode surface preparation protocols, along with support in adapting them to cater for your assay requirements.

For further information, please email [sales@biotIP.co.uk](mailto:sales@biotIP.co.uk) or call +44 7816 56 46 99

## Datasheet

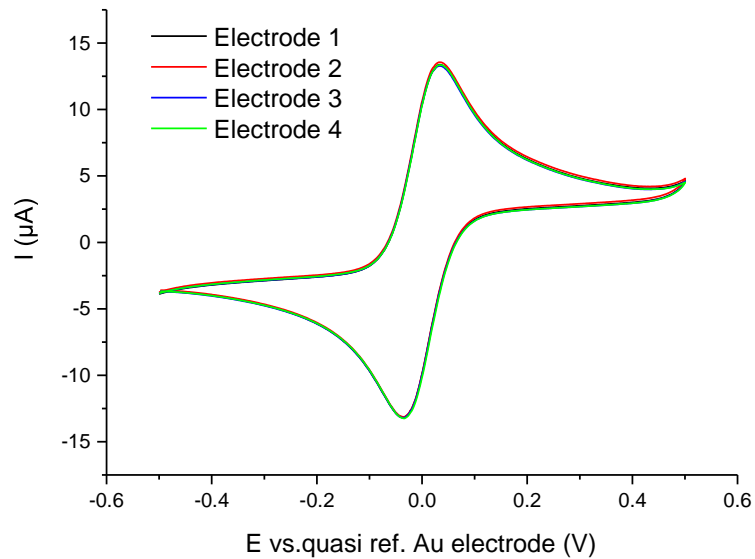


Figure 2: Cyclic voltammogram obtained with four different sets of SEP1 electrodes in electrolyte with 5mM  $[\text{Fe}(\text{CN})_6]^{3-/4-}$ .

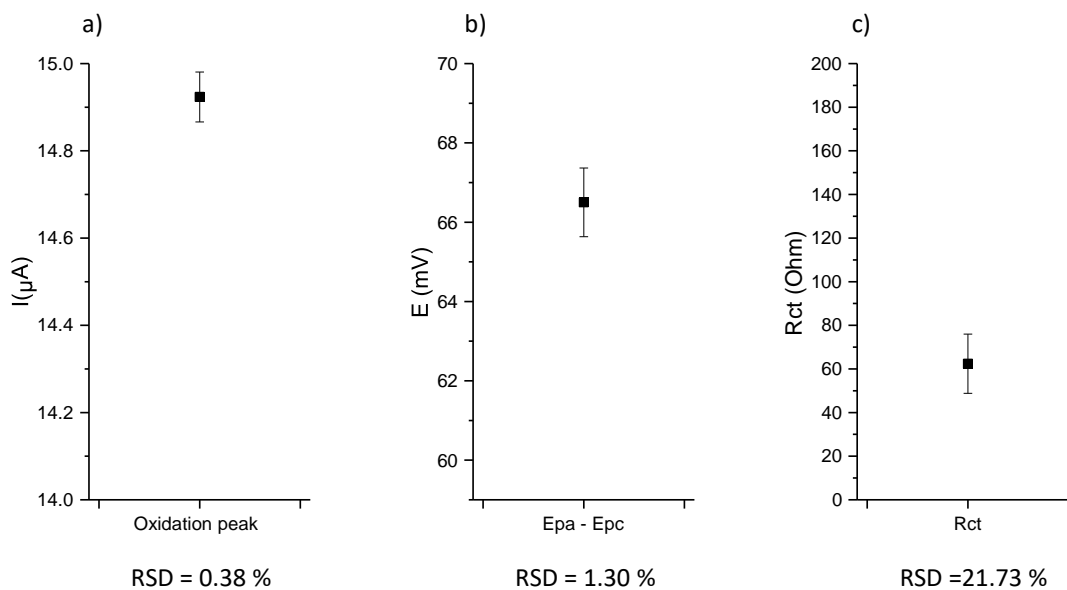


Figure 3: Current obtained from oxidation of 5mM  $[\text{Fe}(\text{CN})_6]^{3-/4-}$  (a), potential difference between reduction and oxidation peaks in cyclic voltammogram (b) and  $R_{ct}$  obtained with electrochemical impedance spectroscopy (c),  $n=4$  for all experiments.

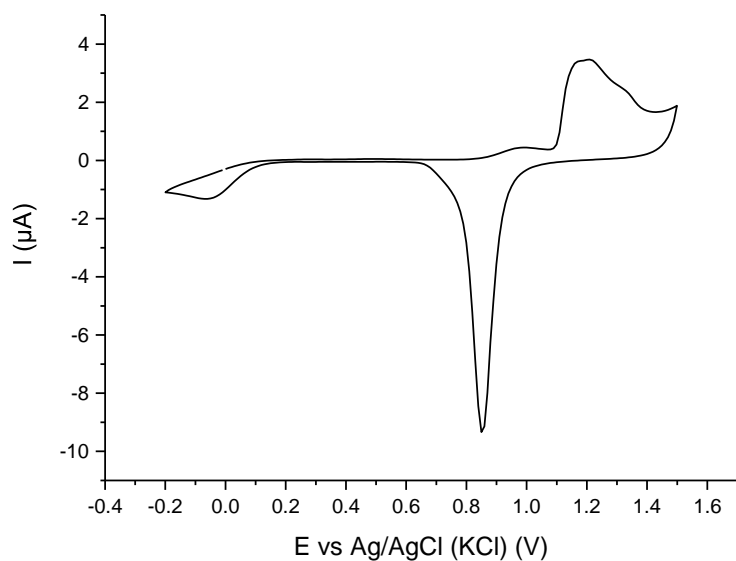


Figure 4: Cyclic voltammogram in 0.5M sulphuric acid reveals clear formation and reduction of oxide layer.

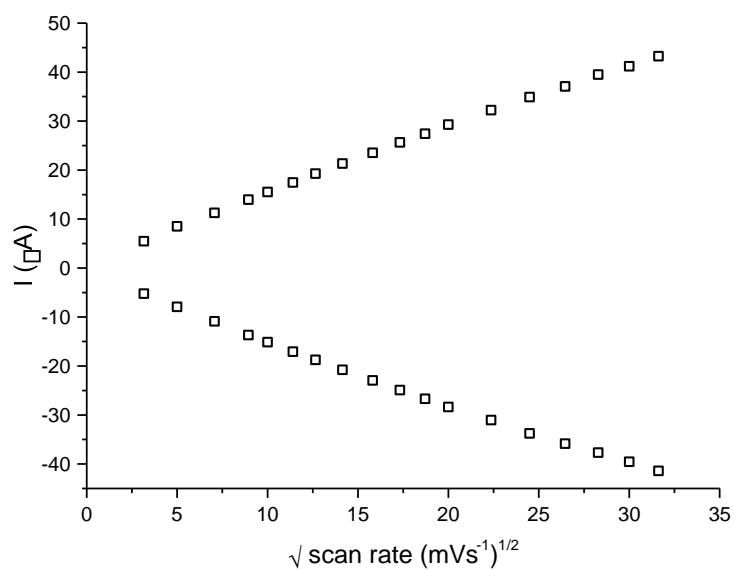


Figure 5: Increasing the scan rate reveals linear relationship between the obtained current and the square root of the scan rate.

## Pinout schematic for manually connecting SEP1

Each set of electrodes (Figure 6) may be connected according to the schematic pinout if you do not wish to use the specifically designed connector, SEP3.

The following colour convention is used and shown in the schematic representation below. Pin numbers are increasing from left to right.

Working – Green – pins 3, 11, 21 & 30

Reference – Red – pins 7, 13, 17 & 26

Counter – White – pins 2, 10, 22 & 31

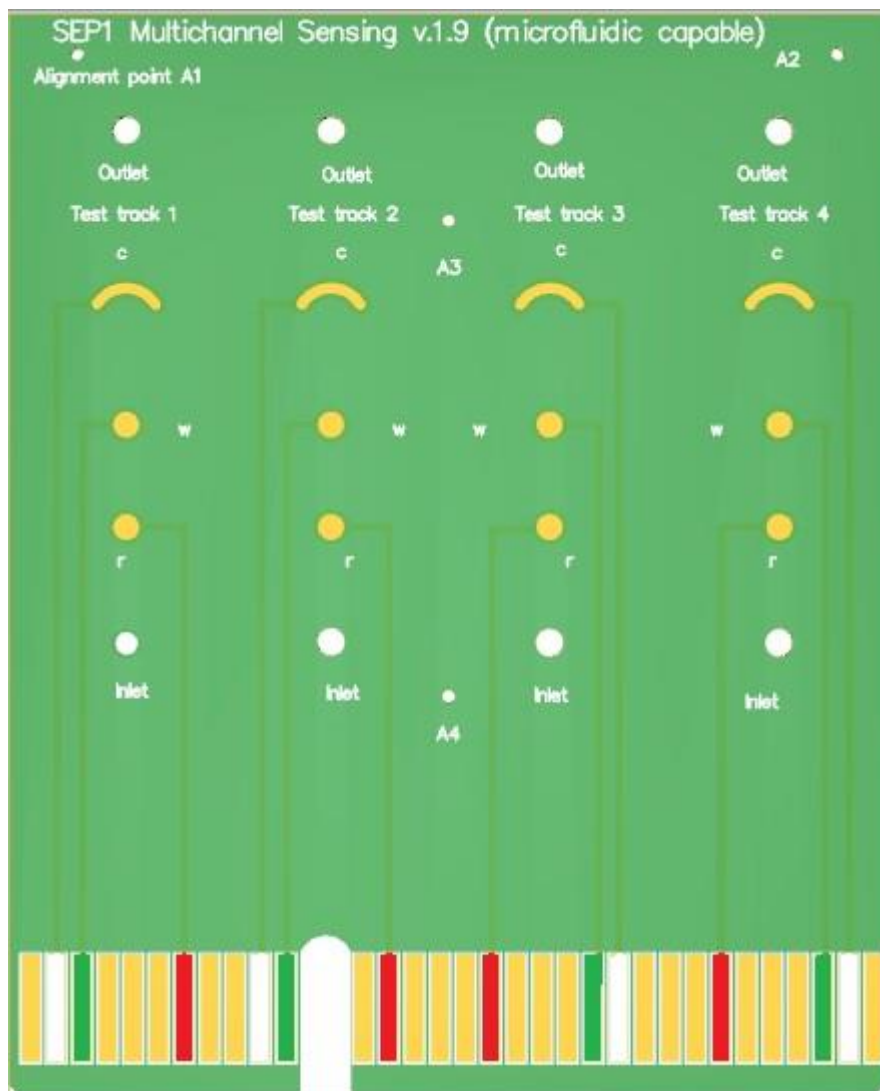


Figure 6: SEP1 pinout schematic.