



Tech Note

Specialized Recording and Stimulating Electrodes

Overview

Recording biopotential signals from animals or animal tissue may require the use of specialized electrodes. Electrodes may need to be designed to allow tissues or organs, like a heart or a muscle, to move without being restricted by the weight, size, or shape of the electrode. Other electrodes are designed to reduce damage to tissue while maintaining good conductivity of the signals from the tissue. Stimulating electrodes also need to be specialized to improve conductivity while reducing damage to tissues or organs.

A selection of available recording and stimulating electrodes with attached lead wires or cables are presented in this tech note.

C-ISO-N3

The C-ISO-N3 is a set of three color-coded lead wires with silver wire electrodes for recording biopotentials from animal tissues. The lead wires have colored safety connectors for use with the inputs of the standard C-AAMI recording cable included in iWorx teaching kits. The other end of each lead wire has a stiff 22-gauge silver wire electrode (25mm long) that is used like a needle electrode. These electrodes are used for recording from preparations like the earthworm ventral nerve cord or the cockroach leg.

These electrodes are also available in a color-coded set of 5: P/N: C-ISO-N5.

C-ISO-F3

The C-ISO-F3 is also a set of three color-coded lead wires with longer and more flexible silver wire electrodes for recording biopotentials from animal tissues. Like the C-ISO-N3 leads, the C-ISO-F3 lead wires have colored safety connectors for use with the inputs of the standard C-AAMI recording cable included in iWorx teaching kits. The other end of each C-ISO-F3 lead wire has a flexible 24-gauge silver wire electrode (80 mm long) that can be shaped to conform to the surface of a tissue or organ, like the coils in Figure 2. These electrodes can be used for recording ECGs from the hearts or EMGs from muscles.

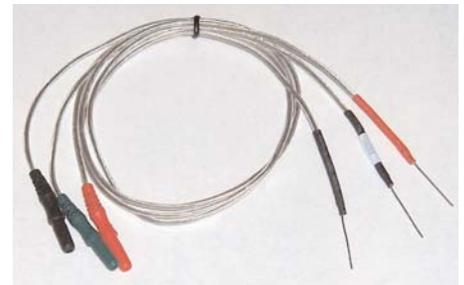


Figure 1: C-ISO-N3 lead wires with silver wire electrodes

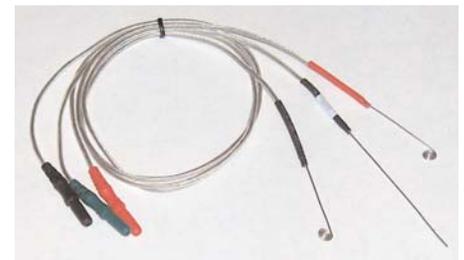


Figure 2: C-ISO-F3 lead wires with flexible silver wire electrodes

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C-STIM-BNC-N2

The C-STIM-BNC-N2 is a stimulator cable with a male-BNC connector for attachment to female-BNC outputs or adapters on stimulators. The lead wires at the other end of the C-STIM-BNC-N2 have stiff 22-gauge silver wire electrodes (each 25mm long) that are used like a needle electrodes. These electrodes can be used for stimulating preparations like the earthworm ventral nerve cord or frog muscles.

C-STIM-BNC-F2

The C-STIM-BNC-F2 is a stimulator cable with a male-BNC connector for attachment to female-BNC outputs or adapters on stimulators. The lead wires on the other end of the C-STIM-BNC-F2 have flexible 24-gauge silver wire electrodes (80 mm long) that can be shaped to conform to the surface of tissues or organs, like the coils in Figure 4. These electrodes can be used for stimulating hearts or muscles without damaging the organs.

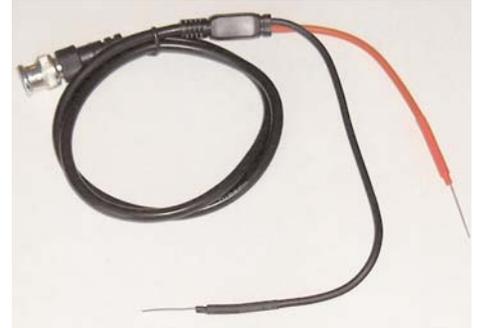


Figure 3: C-STIM-BNC-N2 stimulator cable with silver wire electrode



Figure 4: C-STIM-BNC-F2 stimulator cable with flexible silver wire electrode