

## Experiment HH-7: Electrocardiograms from the Six Chest Leads

### Equipment Required

PC or Mac Computer

IXTA, USB cable, IXTA power supply

iWire-B3G ECG cable and electrode lead wires

3-way indifferent ECG lead cable

Alcohol swabs

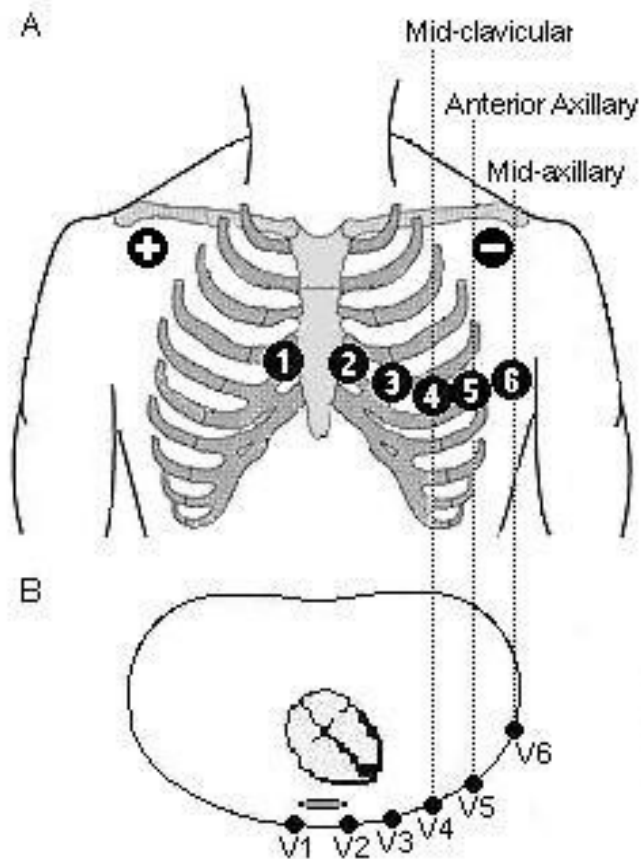
Disposable ECG electrodes (12)

*Note: It is suggested that students dress appropriately for these exercises.*

### Electrode Placement

1. The subject should remove all jewelry from his or her neck, wrists, and ankles.
2. Use an alcohol swab to clean and scrub regions on each wrist and ankle, under the lateral end of each clavicle and, on the chest. Let the areas dry.
3. Obtain 12 disposable electrodes. Remove each electrode from its protective plastic sheet and apply it to one of the following scrubbed areas on the subject's body:
  - under the lateral ends of each clavicle; for use as the positive and negative electrodes of Lead I.
  - on each wrist and each ankle; for use as the ground and the three electrodes that form the indifferent point for the chest leads.
  - over the right border of the sternum at the 4th intercostal space; for use as the active electrode of the V1 chest lead.
  - over the left border of the sternum at the 4th intercostal space; for use as the active electrode of the V2 chest lead.
  - on the left mid-clavicular line at the 5th intercostal space; for use as the active electrode of the V4 chest lead.
  - halfway between V2 and V4; for use as the active electrode of the V3 chest lead.
  - on the anterior axillary line at the same horizontal level as V4; for use as the active electrode of the V5 chest lead.
  - on the mid-axillary line at the 5th intercostal space; for use as the active electrode of the V6 chest lead.

**NOTE:** Plug the iWire-B3G into the TA prior to turning it on.



*Figure HH-7-S1: A: Frontal view of the electrode positions for Lead I and the six chest leads. B: Top view of the electrode positions for the chest leads.*

### **ECG Cable Setup**

1. Locate the iWire-B3G ECG cable and electrode lead wires and the C-ECG-IE indifferent electrode cable.
2. Insert the connector on the end of the ECG cable into the iWire1 input on the front of the IXTA.

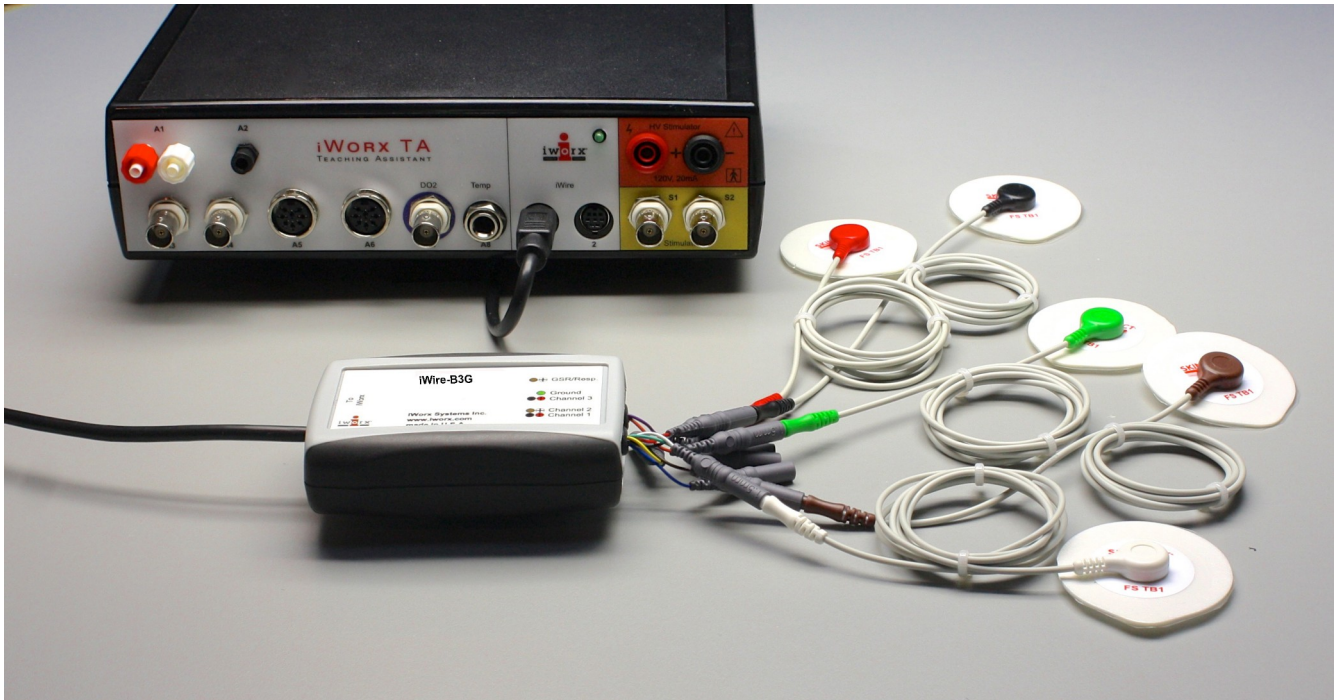


Figure HH-7-S2: iWire-B3G cable with five snap leads.

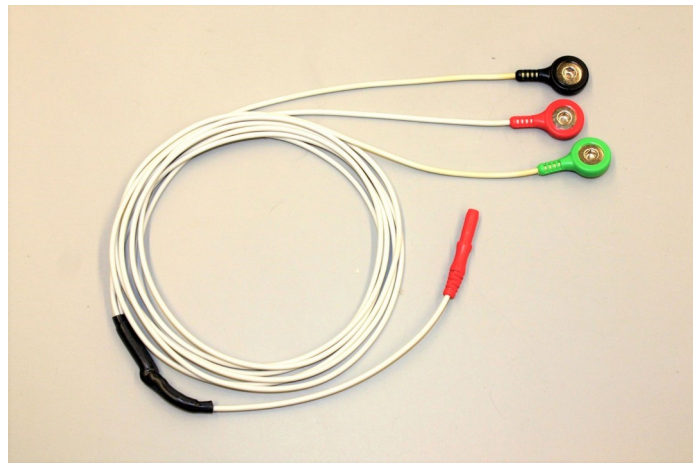


Figure HH-7-S3: C-ECG-IE indifferent electrode cable.



*Figure HH-7-S4: iWire-B3G cable with C-ECG-IE indifferent electrode cable attached to an IXTA for recording a limb and a chest lead ECG.*

3. Attach four color-coded (red, black, green, brown) single electrode lead wires to the sockets on the iWire-B3G ECG cable. Snap the other ends of the cables to the electrodes on the subject, so that:
  - the black “-1” lead wire is connected to the electrode below the right clavicle,
  - the red “+1” lead wire is connected to the electrode below the left clavicle,
  - the green “C” lead wire is connected to the electrode on the right ankle.
  - the brown “-2” lead wire is connected to the electrode on the V1 chest electrode.
4. Attach the 3-way indifferent electrode cable to the white “+2” input. Snap each of the other ends of this indifferent electrode cable to a different limb electrode: the first to the left arm; the second to the right arm; and the third to the left leg.