

## Experiment HH-8: Heart Sounds

## Equipment Required

PC or Mac Computer

IXTA, USB cable, IXTA power supply

iWire-B3G ECG cable and electrode lead wires

HSM-220 heart sounds microphone

Velcro chest belt or elastic bandage (Ace wrap)

## Alcohol swabs

## Disposable ECG electrodes

## ECG Cable and Heart Sounds Microphone Setup

***Note: You must connect the iWire-B3G to the IXTA prior to turning in on.***

1. Locate the iWire-B3G ECG cable and electrode lead wires and the HSM-220 heart sounds microphone.



Figure HH-8-S1: The iWire-B3G ECG cable with three lead wires attached.



*Figure HH-8-S2: The HSM-220 heart sounds microphone.*



*Figure HH-8-S3: The ECG cable and pulse transducer connected to an IXTA.*

2. Plug the white tubing connector of the HSM-220 into the white Channel A1 of the IXTA.
3. Insert iWire-B3G connector on the end of the ECG cable into the iWire 1 Channel on the front of the IXTA.
4. Insert the connectors on the red, black, and green electrode lead wires into the matching sockets of the ECG cable.
5. Instruct the subject to remove all jewelry from their wrists and ankles. Another option is to use the area just under each clavicle which will give a better signal.
6. Use an alcohol swab to clean and scrub a region with little or no hair, on the inside of the subject's right wrist. Let the area dry.

7. Remove a disposable ECG electrode from its plastic shield, and apply the electrode to the scrubbed area on the wrist/clavicle.
8. Repeat Steps 6 and 7 for the inside of the left wrist/clavicle and the inside of the right ankle.
9. Snap the lead wires onto the electrodes, so that:
  - the red (+1) lead is attached to the left wrist or under left clavicle,
  - the black (-1) lead is connected to the right wrist or under right clavicle,
  - the green (C or ground) lead is connected to the right leg or on the abdomen.
10. Instruct the subject to sit quietly with their hands in their lap. If the subject moves, the ECG trace will move off the top or bottom of the screen. If the subject moves any muscles in the arms or upper body, electromyograms (EMGs) from the muscles will appear on the ECG recording as noise.