

Experiment HH-9: ECG and Heart Sounds using an Electronic Stethoscope

Equipment Required

PC Computer

IXTA, USB cable, IXTA power supply

iWire-B3G ECG cable and electrode lead wires

ES-300 / ES-301 electronic stethoscope

Alcohol swabs

Disposable ECG electrodes

Note – You must connect the iWire-B3G to the IXTA prior to turning it on.

ECG Cable and Electronic Stethoscope Setup

1. Locate the iWire-B3G ECG cable and electrode lead wires and electronic stethoscope in the iWorx kit.



Figure HH-9-S1: The electronic stethoscope with Phono-DIN8 cable.

2. Locate the Phono-DIN8 cable that is packaged with the ES-300 electronic stethoscope. Plug the small phono jack into the side port of the stethoscope. For the ES-301, plug the DIN-8 cable and the headphones into the connector as shown.
3. Plug the DIN8 connector of the stethoscope into Channel A5 of the IXTA.
4. Insert the connector on the end of the iWire-B3G ECG cable into the iWire 1 input on the front of the IXTA.
5. Insert the connectors on the red, black, and green electrode lead wires into the matching sockets on the ECG cable.



Figure HH-9-S2: The ECG cable and ES-300 electronic stethoscope connected to an IXTA.

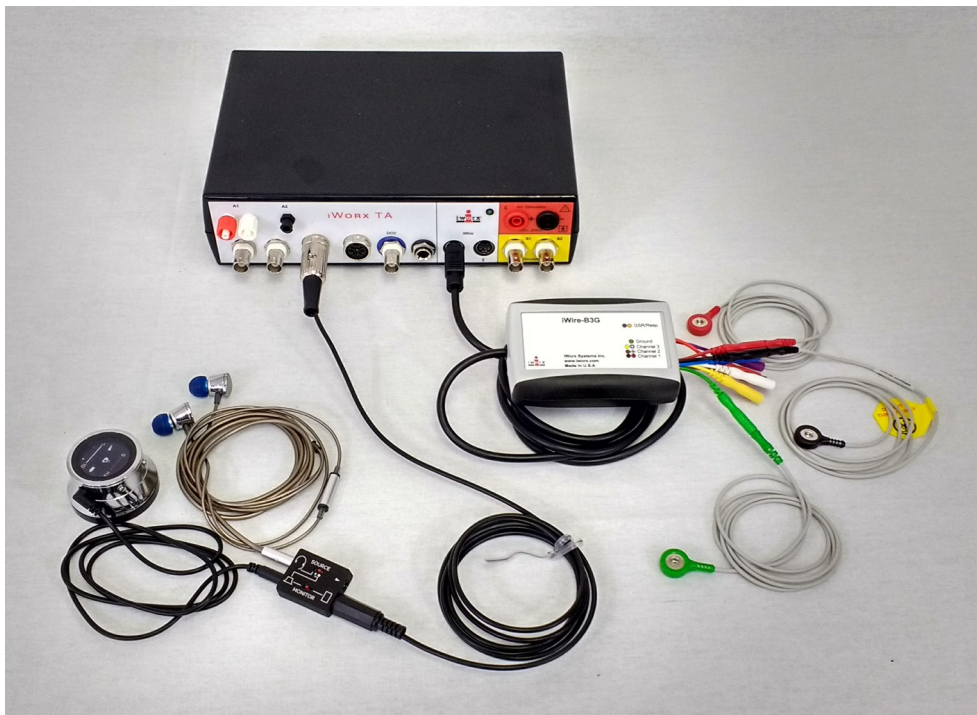


Figure HH-9-S3: The ECG cable and the ES-301 stethoscope connected to an IXTA.

6. Instruct the subject to remove all jewelry from their wrists and ankles. An alternative electrode location would be to use the area just under each clavicle which will give a better recording.
7. Use an alcohol swab to clean a region of skin on the inside of the subject's right wrist/clavicle. Let the area dry. Then, rough up the skin in that area with an emery board. this improves the conductivity of the electrodes.

8. Remove a disposable ECG electrode from its plastic shield, and apply the electrode to the scrubbed area on the wrist/clavicle.
9. Repeat Steps 6 and 7 for the inside of the left wrist/clavicle and the inside of the right ankle.
10. Snap the lead wires onto the electrodes, so that:
 - the red (+1) lead is attached to the left wrist or under the left clavicle,
 - the black (-1) lead is connected to the right wrist or under the right clavicle,
 - the green (C or ground) lead is connected to the right leg or on the abdomen.
11. 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.
12. Press the Power button on the ES-300 electronic stethoscope so that the blue power light on the bell of the stethoscope is lit.

Note: The ES-300 electronic stethoscope automatically shuts off after 2 minutes. Push the Power button to turn the stethoscope back on. The stethoscope can be programmed for 5 minutes by Pushing and Holding the Power button until all LED lights are lit. See the Tech Note for the ES-300.