

## Experiment HC-6: Effects of Temperature on Peripheral Oxygen Saturation Levels

### Equipment Required

PC or Mac Computer

IXTA, USB cable, IXTA power supply

iWire-B3G ECG cable and electrode lead wires

PO2-CMS50D (USB) Pulse Oximeter

PT-104 Pulse sensor

Alcohol swabs

Disposable ECG electrodes

Ice, cold and hot water, plastic bag

### ECG Cable, Pulse and Pulse Oximeter Setup

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

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

2. Insert the connector on the end of the iWire-B3G cable into the iWire1 input on the front of the IXTA.
3. Instruct the subject to remove all jewelry from their fingers, wrists and ankles.
4. Insert the connectors on the red, black, and green electrode lead wires into the matching sockets on the ECG cable.
5. 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. Another option is to use the area just under each clavicle which will give a better recording.
6. Remove a disposable ECG electrode from its plastic shield, and apply the electrode to the scrubbed area on the wrist/clavicle.
7. Repeat Steps 6 and 7 for the inside of the left wrist/clavicle and the inside of the right ankle/abdomen.



*Figure HC-6-S2: A iWire-B3G ECG cable with 3 lead wires and the PT-104 pulse sensor connected to an IXTA. The Pulse Oximeter will be connected directly to the computer via USB.*

8. 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.
  
9. Locate the USB pulse oximeter.



*Figure HC-6-S3: The PO2-100 pulse oximeter.*

10. Plug the USB connector of the pulse oximeter to a USB port on the computer.
11. Clip the sensor over the end of the subject's left middle finger. Press the power button and wait for the oximeter to power on. Once on, the display will read both the O<sub>2</sub> saturation and the heart rate. Both of these parameters will also be recorded in LabScribe.

**Warning:** *The photoplethymograph sensor passes two wavelengths of light through the subject's fingernail. For proper recording, the subject's fingernail should not be covered with nail polish, artificial nails, or any coating, clear or otherwise.*

9. Connect the PT-104 Pulse sensor to channel A5. Strap the sensor to the volar surface of the subject's left thumb. Make sure it is not too loose or too tight.
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.

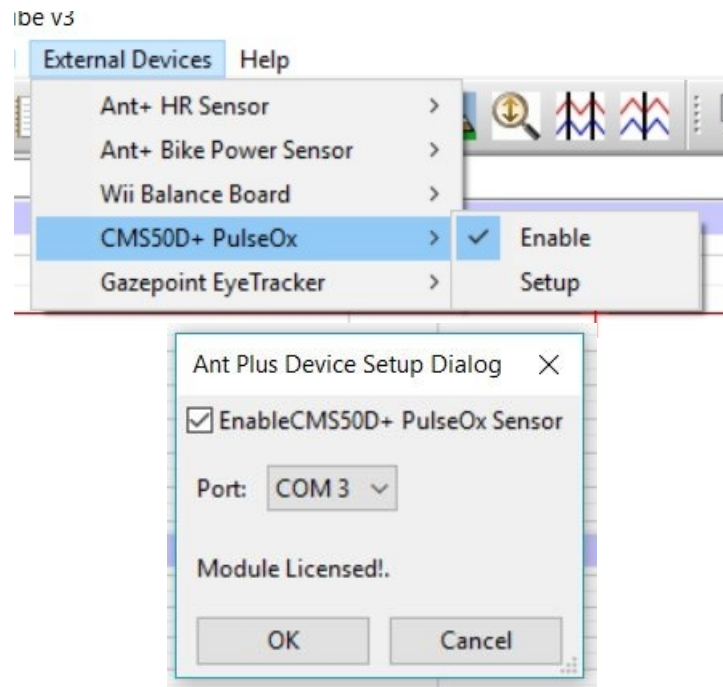


Figure HC-6-S4: Enabling the USB Pulse Oximeter

### Set-up and Enable the USB Pulse Oximeter

1. Once the setting file has been opened
  - Click External Devices on the main menu bar.
  - Select CMS50D+ Pulse Ox or CMS-50D-BT
  - Click Setup.

- Put a check mark in the box to Enable the PulseOx Sensor.
- Check to make sure a Port is being recognized – choose that port.
- Click on the OK button.