

Experiment HS-4: Lung Volumes and Heart Rate

Equipment Required

PC or Mac Computer

IXTA, USB cable, IXTA power supply

A-FH-300L Spirometer flow head and plastic tubes

A-SRK Student Respiratory kit

PPG-320 Pulse plethysmograph

Spirometer and Pulse Plethysmograph Setup

1. Locate the A-FH-300L flow head, the airflow tubing, and the PPG-320 pulse plethysmograph.

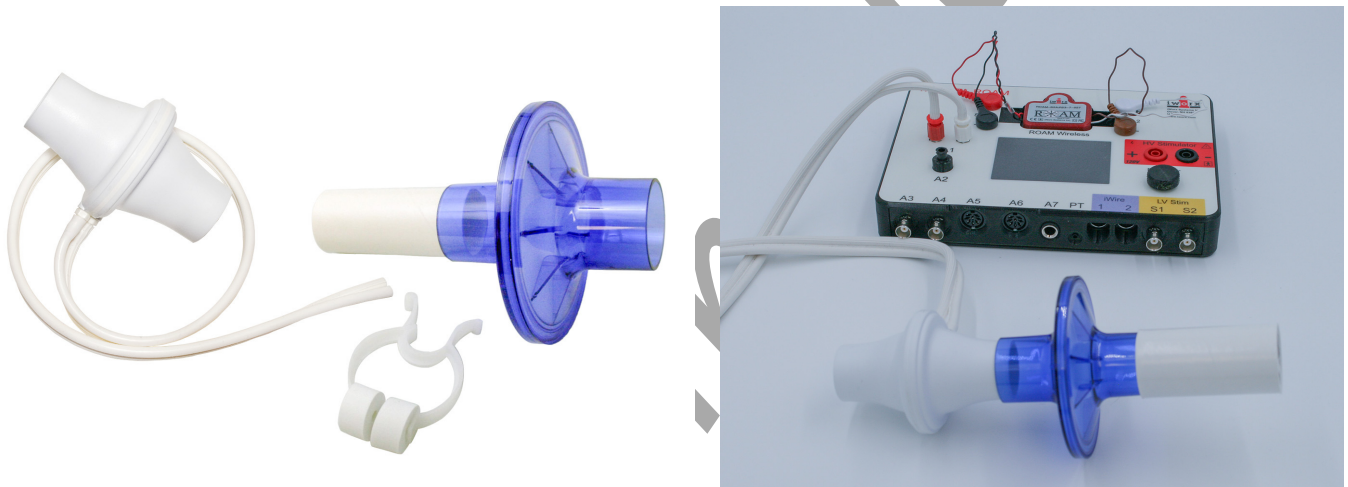


Figure HS-4-S1: The student respiratory kit and the A-FH-300L flow head and the airflow tubing. The blue filter will attach to the flow head.

2. Firmly push the two air flow tubes onto the two outlets on the A-FH-300L flow head. Carefully connect the other ends of the two air flow tubes into the Channel A1 input of the TA, and connect the pulse sensor to the PT port.
3. Place the plethysmograph on the volar surface (where the fingerprints are located) of the distal segment of the subject's middle finger or thumb, and wrap the Velcro™ strap around the end of the finger to attach the unit firmly in place.



Figure HS-4-S3: A PPG-320 pulse plethysmograph and the 300 L flow head connected to the TA unit.

Before Starting

1. Please read the procedures for each exercise completely before beginning the experiment. You should have a good understanding of how to perform these exercises before making recordings.
2. The spirometer will monitor breathing from a subject. It is important that the subject is healthy and has no history of respiratory or cardiovascular problems.
3. The outlets on the flow head should always be in the upright position to avoid problems with condensation developing in the airflow tubes.
4. To reduce turbulence, the subject should place their lips around the cardboard mouthpiece attached to the flow head.
5. Use a nose-clip to prevent air from entering or leaving the nose as the subject is breathing. If not using the nose clip, hold your nose and breathe only through your mouth.
6. Check the calibration of your spirometer on the Lung Volumes channel:
 - Click on the words Vol.Human (Air Flow), that are next to the title of the Lung Volumes channel, to open the computed function pull-down menu.
 - Select Setup Function from this pull-down menu to open the Spirometer Calibration Dialog window.

- Check that the internal spirometer is being used by making sure the Type of Spirometer is the IXTA.
 - Make sure the reset time is set to “No Reset”, and the first 10 seconds of the recording are used to zero the baseline of the Lung Volumes channel.
 - Enter 37 for temperature of exhaled air.
 - Click OK.
7. Allow the IXTA to warm up for 10 minutes before recording for the first time.
 8. Make sure the subject is breathing through the red port side of the flow head.

