

## Application Note 173 SS30LA/SS30L Electronic Stethoscope Heart Sounds & Korotkoff Sounds

### Overview

The SS30LA/SS30L Electronic Stethoscope will allow you to record and listen to heart sounds and Korotkoff sounds. The Electronic Stethoscope has a microphone built into the tubing that connects to the MP36/36R/35/46/45 data acquisition unit. The microphone will record the sounds heard through the stethoscope and simultaneously display them. This allows students to become familiar with the standard procedure for listening to blood pressure signals and heart sounds. They also become familiar with the look of the electrical signal and learn how to analyze the data. See BSL Lesson 16 for more information on recording blood pressure, heart sounds, and Korotkoff sounds.

### SS30LA/SS30L Specifications

- Stethoscope length from Y to contact point: 57 cm
- Stethoscope length from Y to ears: 21 cm
- Microphone Bandwidth: 20-300 Hz
- Microphone Cable Length: 2 meters

### Equipment

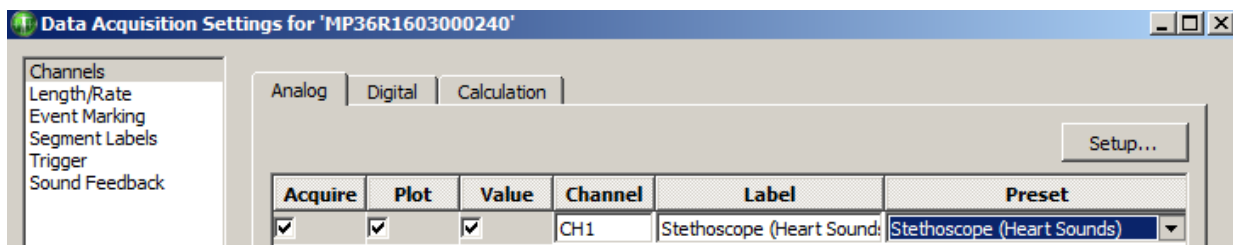
- SS30LA/SS30L Electronic Stethoscope
- Biopac Student Lab software with MP36, MP35, or MP45 hardware or *AcqKnowledge* software with MP36R hardware

### Hardware Setup

Connect the SS30LA/SS30L to an input channel (CH) on the MP unit and power the unit on.

### Software Setup for Heart Sounds

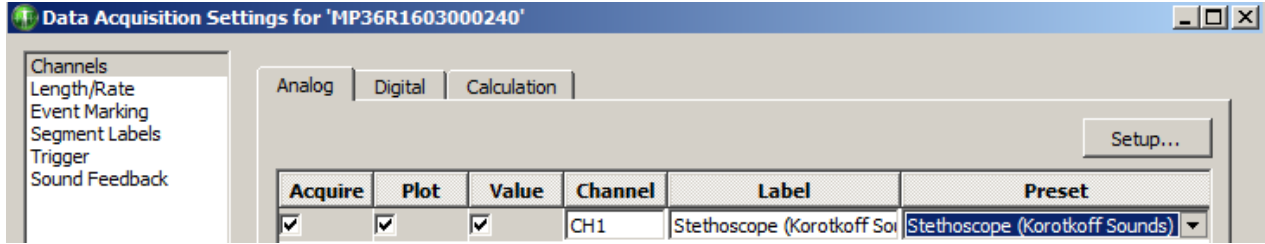
1. Launch BIOPAC Student Lab and choose “Create/Record a new experiment” in the Startup screen.
2. From the CH1 Preset menu, choose “Stethoscope (Heart Sounds).”
3. Click the “Close” button.



4. Position the stethoscope microphone properly on the Subject’s chest and click the BSL or *AcqKnowledge* graph **Start** button. (See placement diagram on page 3.)
5. Click **Stop** when finished recording.

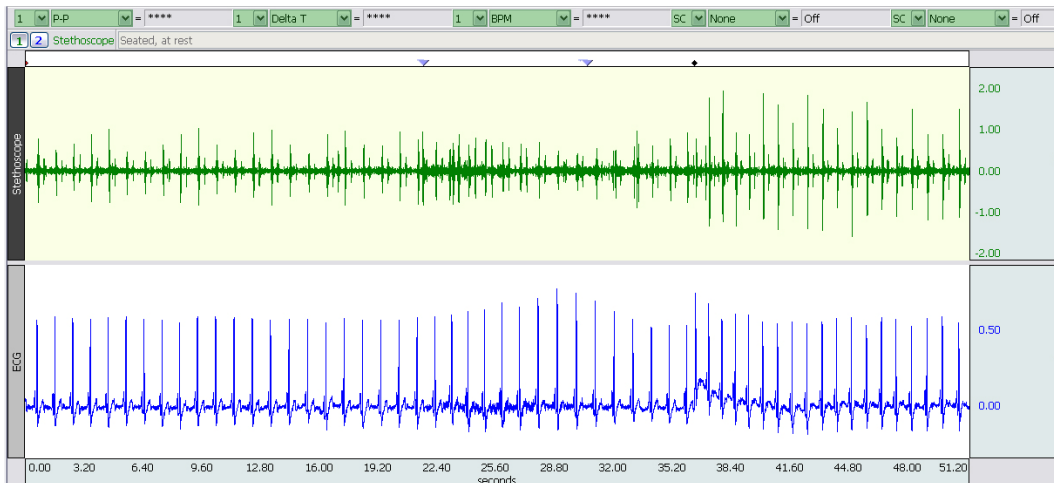
Software Setup for Korotkoff Sounds

1. Launch BIOPAC Student Lab and choose “Create/Record a new experiment” in the Startup screen.
2. From the CH1 Preset menu, choose “Stethoscope (Korotkoff Sounds).”
3. Click the “Close” button.

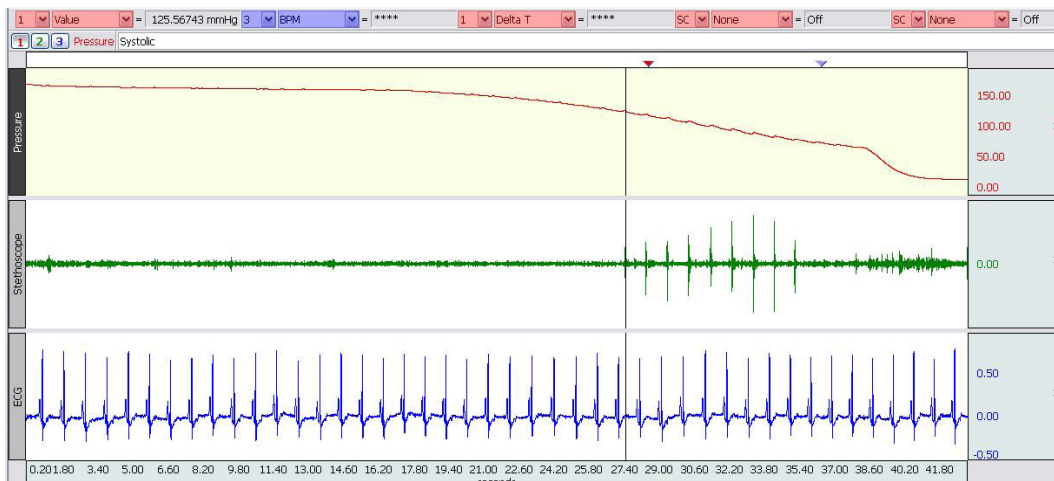


4. Position the stethoscope microphone properly on the Subject’s chest and click the BSL or AcqKnowledge graph **Start** button. (See placement diagram on page 3.)  
Click **Stop** when finished recording.

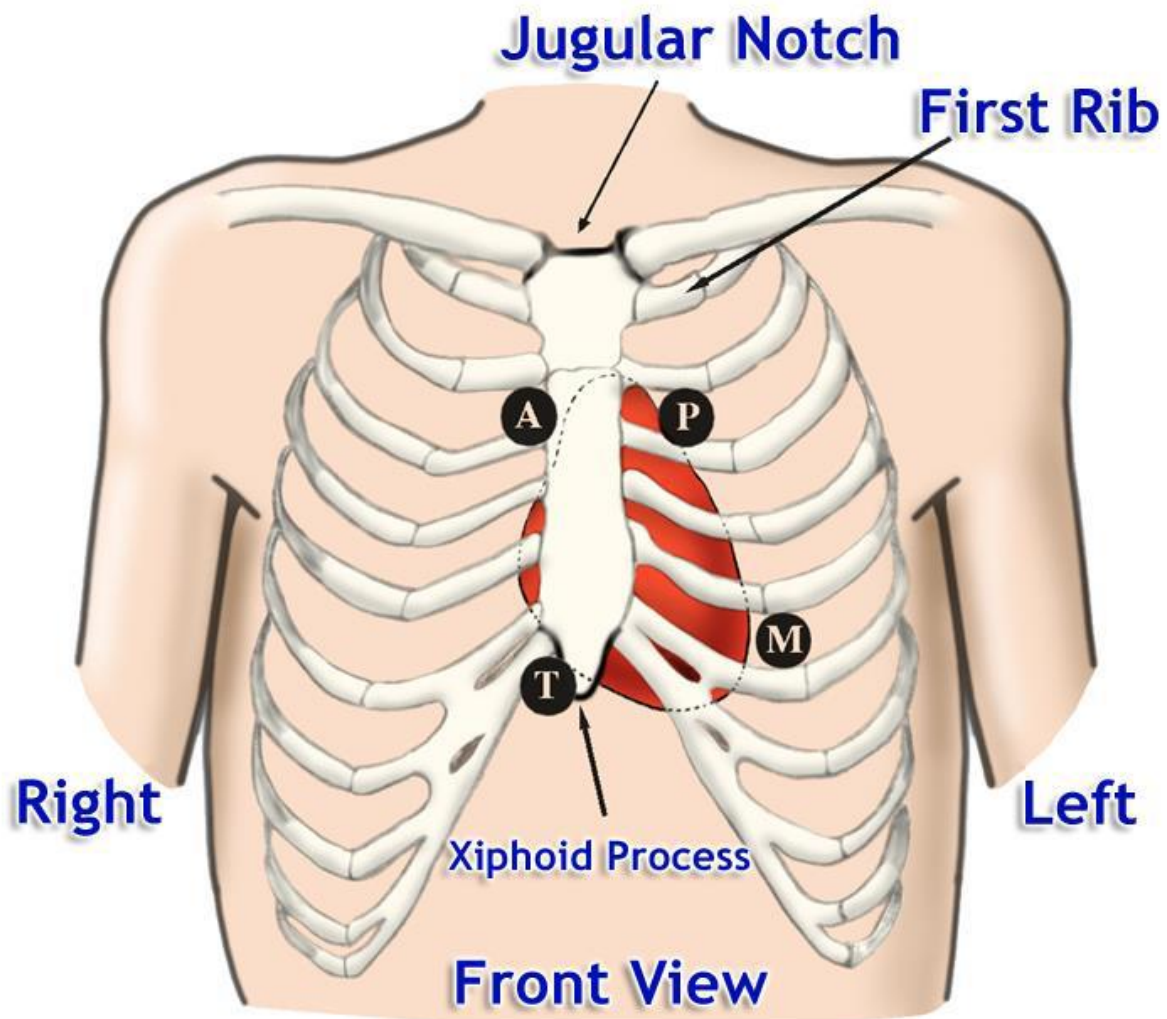
**NOTE:** Heart sounds or Korotkoff sounds via the SS30LA/SS30L Stethoscope are often recorded in conjunction with ECG and/or Blood Pressure signals in separate channels. For this, an SS2LA Electrode Lead Set, EL503 Electrodes, and an SS19L series Blood Pressure Cuff (Sphygmomanometer) is necessary. See BSL Lessons 16 (Blood Pressure) and BSL Lessons 17 (Heart Sounds) for more information about recording these signals.



*Example Heart Sound Data (Green Channel)*



*Example Korotkoff Sound Data (Green Channel)*



**Key:**

<b>A</b> - Aortic	<b>T</b> - Tricuspid
<b>P</b> - Pulmonic	<b>M</b> - Mitral

*Heart Valve Position and Corresponding Stethoscope Placement*