

# Auscultation Simulator with Heart and Lung Sounds

S315.200



**Gaumard®**  
Simulators for Health Care Education

This simulator is an interactive educational system developed to assist a certified instructor. It is not a substitute for a comprehensive understanding of the subject matter and not intended for clinical decision making.

**User Guide 15.8.2**

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# Overall Warnings

Remember that damage caused by misuse is not covered by your warranty. It is critical to understand and comply with the following guidelines:

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## GENERAL

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- The simulator is constructed of material that approximates skin texture. Therefore, in handling the model, use the same gentle techniques as you would in working with a patient.
- Ball point pens, ink and markers permanently stain the skin.
- Do not wrap this or any other Gaumard product in newsprint.
- Indelible marks made with ballpoint pens, ink or marker cannot be removed.
- Do not use alcohol, acetone, Betadine® or any other antiseptic which contains iodine in this or any Gaumard® simulator. These products could damage or stain the skin of the simulator.
- Replacement parts are available from Gaumard Scientific or your Distributor.

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## OPERATING CONDITIONS

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Operating the simulator outside these ranges may affect performance:

- Operating temperature: 50°-95° F (10°-35° C).
- Humidity: 5%-95% (non-condensing).

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## STORAGE CONDITIONS

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- Storage temperature: 32°-113° F (0°-45° C).
- Humidity: 40%-60% (non-condensing).
- Do not stack or store heavy materials on top of the carton.

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## CLEANING

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- The simulator should be cleaned with a cloth dampened with diluted liquid dishwashing soap. If medical adhesives remain on the skin, clean with alcohol wipes.
- Apply talcum powder to the face to reduce the silicone tackiness.
- The simulator is "splash-proof" but not water-proof. Do not submerge or allow fluid to enter the interior of the simulator.



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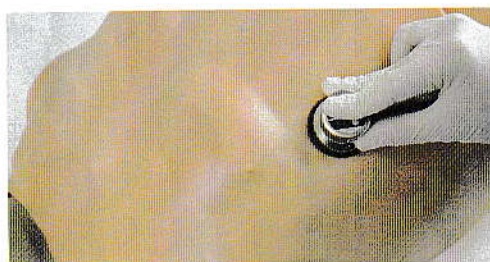
# Heart and Lung Sounds

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## Overview

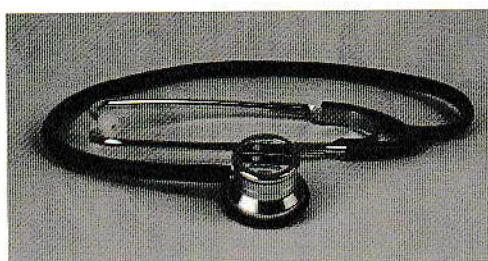
This simulator features a full-size adult upper torso and head with palpable anatomic landmarks.

Heart and Lung Sounds teaching system is a tool used for auscultation training. The system is composed of a Virtual Stethoscope™ and sound ID tags located beneath the skin in a total of 13 locations, 9 on the front and 4 on the back.



Incorporated in the Virtual Stethoscope™ is:

- Power switch
- Sound menu switch



The skin of the simulator has 13 ID Tags located under the skin where each of the heart and lung sounds are normally heard.

The simulator is shipped with removable blue dots attached to the skin to show the location of the sound ID tags and at any time



You may remove the front and back skins of the torso to locate and note the positions of the tags.

Each ID tag pertains to a different area and will signal the Virtual Stethoscope™ to produce a different sound when in use.

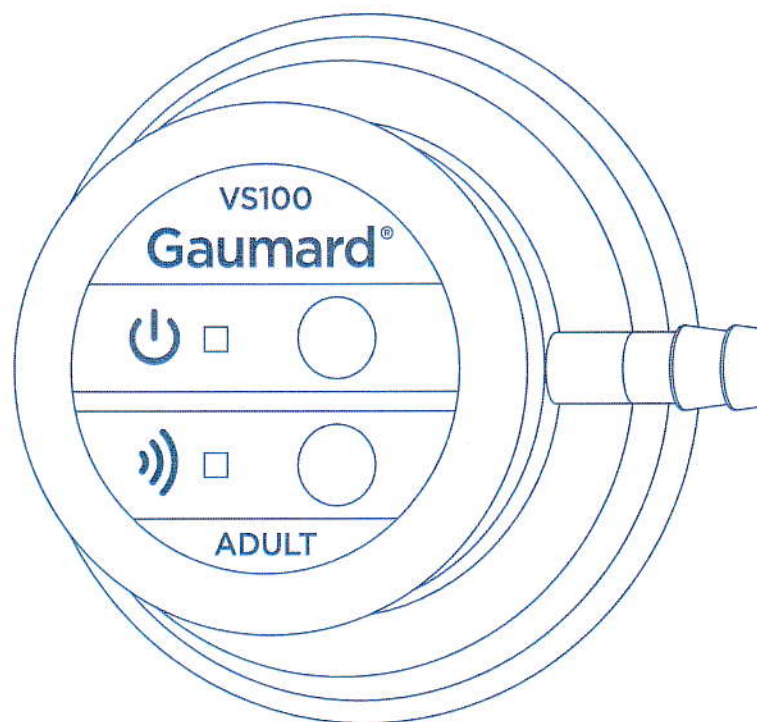




**Gaumard®**  
Simulators for Health Care Education

# Virtual Stethoscope User Guide

**VS100 ADULT**




MADE IN THE U.S.A.

## VS100 USER GUIDE

### GETTING STARTED




Unscrew the top cover of the stethoscope bell. Remove and discard the plastic insert separating the two batteries prior to first use.

### ON/OFF

Push the  button to power the stethoscope on/off. When the stethoscope is on the power light blinks green. When the battery is low the power light blinks red. The stethoscope automatically powers off after 6 minutes of inactivity or after 40 seconds of looking for a sound without success.



### SOUND SELECTION

Press and hold the  button for 2 seconds to begin selecting the desired sound set as per the "VS100 SOUND TABLE" at the back of this user guide. Press the  button briefly to cycle through the different sound set colors. Press and hold the  button for 2 seconds again to hide the selected color.



### PLAYING A SOUND

Press the stethoscope firmly against the auscultation areas to listen for sounds. If the stethoscope is pressed against non-auscultation areas the indicator lights stop blinking.



## VS100 SOUND DETAILS

SOUND	COMMENT
Base Sound	Patient has a normal heart with mild anemia. The heart is hyperdynamic and has elevated cardiac output. S2 is accentuated at the base.
Fixed Split S2	Patient has an atrial septal defect which increases flow through the right heart, prolongs RV systole and also produces a mid-systolic murmur (MSM) because of increased flow through the RV outflow tract.



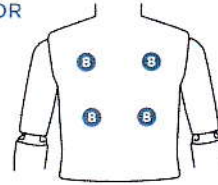
<b>Physiological Split S2</b>	The splitting of S2 is easily heard during inspiration and the second sound is single during expiration. The second component of the split sound (P2) is accentuated.
<b>Split S2</b>	S2 is variably split during mid-inspiration, as three beats are repeated.
<b>Paradoxical Split S2</b>	The splitting of S2 is heard during expiration, but the sound becomes single during inspiration. The background noise is increased during inspiration.
<b>Opening Snap</b>	Patient has mitral stenosis, responsible for an early crisp diastolic sound heard at the base 0.08 seconds after S2. S1 is usually loud at the base, which reflects mitral stenosis.
<b>Friction Rub</b>	Patient has uremic pericarditis, which leads to rubbing of roughened visceral and parietal pericardial surfaces against one another. The 3 component rub exists during deep inspiration.
<b>Apex Sound</b>	Patient has a normal heart with mild anemia. The heart is hyperdynamic and has elevated cardiac output.
<b>Mid-Systolic Click</b>	Patient has mitral prolapse, which produces a mid-systolic click heard during inspiration.
<b>S3 Sound</b>	Patient has a readily heard third heart sound. S3 occurs later in diastole than the opening snap.
<b>Intermittent S4</b>	Patient has left ventricular hypertrophy, and has a fourth sound (S4) which is not heard on every cycle. The sound is presystolic, about 0.1 second before S1.
<b>Starr-Edwards Valve</b>	This ball-in-cage mitral prosthesis has a mechanical closing sound (S1) and one or more diastolic sounds caused by the ball bouncing within the cage.
<b>Tracheal Sounds</b>	Expiration sounds are louder, have a higher pitch, and are of longer duration than during inspiration. The silent period or pause following expiration is longer than the one between expiration and inspiration.
<b>Stridor Sounds</b>	Patient has marked respiratory distress, and a narrow aperture between the vocal cords that produces a high pitched tone during both inspiration and expiration. During the end of expiration, there is an abrupt drop in pitch.
<b>Bronchial Sounds</b>	Breath sounds are similar to tracheal sounds in that the expiratory phase is louder and lasts longer than the inspiratory phase. The major distinguishing characteristic is the high pitched, harsh quality of the expiratory phase.
<b>Wheezing Sounds</b>	These musical wheezing sounds are often heard in asthma patients. During inspiration, the wheeze is slightly higher in pitch than during expiration. Wheezing in asthmatics is often present in either one or both phases of respiration.

## VS100 SOUND TABLE

ANTERIOR



POSTERIOR



COLOR	SOUND	
Red	<b>1</b> Base Sounds <b>2</b> Physiological Split S2 <b>3</b> Opening Snap <b>4</b> Mid-Systolic Click	<b>5</b> Tracheal Sounds <b>6</b> Bronchial Sounds <b>7</b> Wheezing Sounds <b>8</b> Coarse Crackles
Blue	<b>1</b> Fixed Split S2 <b>2</b> Split S2 <b>3</b> Friction Rub <b>4</b> Intermittent S4	<b>5</b> Stridor Sounds <b>6</b> Wheezing Sounds <b>7</b> Pleural Friction <b>8</b> Pulmonary Edema
Purple	<b>1</b> Base Sounds <b>2</b> Physiological Split S2 <b>3</b> Paradoxical Split S2 <b>4</b> Apex Sounds	<b>5</b> Tracheal Sounds <b>6</b> Bronchial Sounds <b>7</b> Bronchial Sounds <b>8</b> Ronchi Crackles
Green	<b>1</b> Fixed Split S2 <b>2</b> Physiological Split S2 <b>3</b> Opening Snap <b>4</b> S3	<b>5</b> Stridor Sounds <b>6</b> Wheezing Sounds <b>7</b> Pleural Friction <b>8</b> Coarse Crackles
Yellow	<b>1</b> Fixed Split S2 <b>2</b> Split S2 <b>3</b> Friction Rub <b>4</b> Starr-Edwards Valve	<b>5</b> Stridor Sounds <b>6</b> Wheezing Sounds <b>7</b> Med-Fine Crackles <b>8</b> Pulmonary Edema

### CHANGING THE BATTERY

The VS100 Virtual Stethoscope uses two CR2032 batteries (8 replacement batteries are included). To replace the batteries, unscrew the top cover of the stethoscope bell. Pull the battery removal strip outward to remove the batteries. Insert two new batteries, positive (+) sides facing down, taking care to relocate the battery removal strip in its proper position. Replace the top cover of stethoscope bell.

