

**OPERATOR'S MANUAL**  
**PAT, the Pediatric Auscultation Trainer**



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## **SAFETY PRECAUTIONS**

Please read this information before using the SAM II, the Student Auscultation Manikin. It applies to the basic System as well as any optional equipment that may be used with the System.

**In this manual, WARNINGS describes precautions necessary to prevent injury or loss of life. CAUTIONS describe those precautions, procedures, techniques, etc. which are considered essential to emphasize.**

### **WARNING**

**SHOCK HAZARD:** A shock hazard may exist if this System is not properly grounded. The System is designed to operate with a 3-wire AC power system containing a separate ground wire. The ground wire must not be removed or defeated.

### **WARNING**

**SHOCK HAZARD:** Do not remove protective covers on any components of the SAM II manikin. Hazardous voltages may be present. Cabinet panels for this System and all components must be in place while the System is in use. All the internal adjustments, replacements and initializations should be made by a qualified technician.

### **WARNING**

**CLEANING AND CARE:** As a general safety precaution, the System should be turned off and the AC power disconnected before performing any cleaning procedures. Use Windex to clean SAM.

### **CAUTION**

**CONNECTORS:** Do not immerse any of the connectors used in the System in any fluid.

## **TRADEMARKS**

SAM Student Auscultation Manikin, Cardionics, CardioSim, SimulScope, E-Scope and Heartman registered trademarks of Cardionics. Ausculette, StethView and Pocket-monitor are trademarks of Cardionics.

## **REPRODUCTION OF SOUNDS**

All sounds, both simulated and real, and veterinary sounds are copyrighted by Cardionics and may not be reproduced for any reason except by written authorization of Cardionics, Webster, Texas 77598 USA.

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## 1.0 Product description

PAT, the Pediatric Auscultation Trainer, is an interactive manikin for teaching students the art of auscultation.

PAT consists of a half-body male manikin, Laptop computer.



**Figure 1 – PAT System**

PAT has four listening sites for heart sounds, eight listening sites for breath sounds, two listening sites for bowel sounds, and one site for bruit sounds. There are 69 heart sounds, 17 breath sounds and 4 bowel sounds. Additional sounds may be added from time to time.

The heart sound sites are the aortic, tricuspid, pulmonic and mitral areas on the chest and breath sound sites are anterior (left upper and lower; right upper and lower) and posterior (left upper and lower; right upper and lower). The bowel sound sites are the upper right and left quadrants. The bruit site is located in the left side neck.

Sounds may be heard with (1) a normal stethoscope, (2) the E-Scope Electronic Stethoscope, (3) the SimulScope Bedside Auscultation System for group listening, (3) the Classroom Infrared Emitter for group listening, (4) the CardioSim VII Digital Heart Sound Teaching System for group listening and display (5) the Cardionics Auditorium Infrared Sound System, (6) Cardionics Auditorium Infrared Sound System for large group listening or (7) a low frequency speaker.

When listening to breath sounds, there are eight locations -right and left upper anterior chest, right and left lower anterior chest, right and left upper posterior and right and left lower posterior lobes.

For group listening, the SimulScope Bedside Auscultation System (Cat. No. 718-7003) or the Classroom Infrared Emitter (Cat. No. 718-0015) is recommended. Each listener will need a Heartman® Infrared Headphone (Cat. No. 718-7040). For group listening and display of the phonocardiogram, the CardioSim Digital Heart Sound Teaching System (Cat. No. 718-2600) is recommended.

## 2.0 Setting Up PAT

There are two cables and one power supply for the PAT set up. There are two USB cables that connect to the laptop computer on the left side of PAT as shown below in Figure 2.

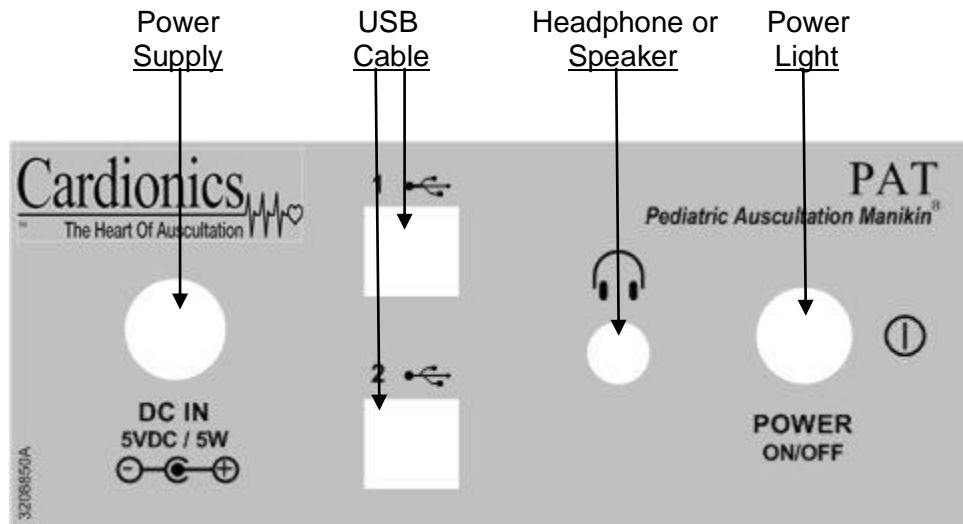


Figure 2 Control Panel for PAT

### Set up

Connect the two USB cables to the PAT Control Panel as shown above in Figure 2. Connect the Power Supply to the DC In as shown above.

### 3.0 Using PAT

The laptop computer displays two pages. A **Sound Select** page and a **Lecture Sequence** page.

Begin by selecting the sound for study by clicking on the **Select Sounds** button as shown in Figure 3 below. You will then see the **Sounds Directory** (Figure 4 below). All sounds have been placed in Groups.

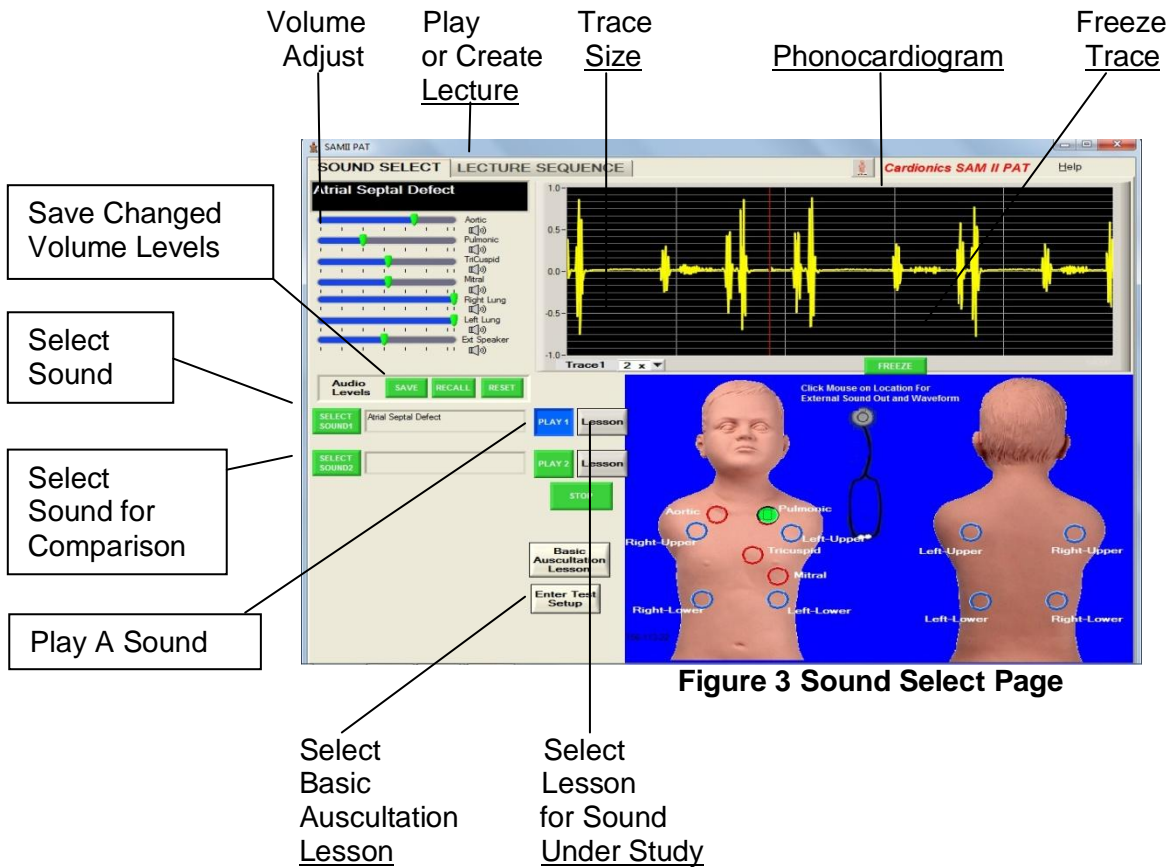


Figure 3 Sound Select Page

1. **Volume Adjust.** Each sound has preset volumes. The instructor may wish to change these volumes to illustrate certain events. Volume adjustment at different anatomical location is done by moving one or more of the slide bars to the left for sound reduction and right for sound increase. The volume on each listening area of SAM II can be altered to fit the particular situation.
2. **Volume Save.** Once set, these volume levels can be saved by clicking on the SAVE button immediately below the slide bars.
3. **Recall.** At any time, the factory settings can be recalled, by simply clicking on the RECALL button next to the SAVE button.
4. **Reset** – The Reset button allow the user to return to his/her previously saved volumes.

5. **Select Sound 1**– by clicking on this button, the user will be taken to the *Sound Select Menu* (Figure 4). A second sound may be selected for comparison purposes by clicking on **Select Sound 2**.
6. **Play a Sound** – by clicking on this button, the sound shown in the *Select Sound* area will be played. Initially, there will be no phonocardiogram shown, but sound can be heard using a stethoscope. By clicking on one of the circled areas, the phonocardiogram will appear.
7. **Compare a Sound** – When selecting a sound, it is often helpful to select a second sounds for comparison purposes. By clicking on this button, the user will be taken to the *Sound Select Menu* for the selection of a sound for comparison purposes. A second sound may be selected for comparison purposes by clicking on **Select Sound 2**.
8. **Select a Lesson** for sound under study. Every sound has a lesson. By clicking on this button, a Lesson will appear on the screen. Each lesson has a description of the sound, a schematic of the chest showing where best to listen, four phonocardiograms at the appropriate anatomical location, questions and answers.
9. **Select Basic Heart Sound Lesson**. In case the student wishes to refer back to the basics, this lesson can be viewed. It appears on every sound.
10. **Phonocardiogram**. A phonocardiogram is a graphic depiction of the heart or breath sounds. When heart and breath sounds are being played simultaneously, the heart sounds will appear in Yellow and breath sounds in Blue.
11. **Freeze Trace**. This allows the trace to be frozen for study. However, the sounds can still be heard.
12. **Trace Size**. This button allows the amplitude of the trace to be increased for better viewing.

**3.1 Sound Selection.** Click on the Sound Selection button as shown in Figure 3 and the below menu will be seen.

<u>Sounds Directory</u>	
<u>Group</u>	<u>Description</u>
Pediatric Heart	Normal Heart Sounds, 60 bpm
Sounds and Variants	Normal Heart Sounds, 75 bpm
	Paradoxical Split of S <sub>2</sub>
Pediatric Systolic Murmurs	Aortic Stenosis Mild 75 bpm
	Atrial Septal Defect 90 bpm
Pediatric Diastolic Murmurs	Aortic Regurgitation Mild, 75 bpm
Pediatric Breath Sounds	Normal Vesicular Breath Sounds, 24 bpm

**Figure 4 Sound Select Page**  
(see Appendix A for the complete Sounds Directory)

If you wish to select a second sound for comparison purposes, from the Main Page, click on **Select Sound 2** directly under the first selection. You can now toggle back and forth between sounds as desired.

Once the Sound has been selected, click on **Play 1** or **Play 2**. Initially, you will not see a phonocardiogram on the screen, but the sounds can be heard with a stethoscope on PAT. To visualize a sound while hearing it, click on one of the circled locations. Listening can be done with an ordinary stethoscope, a speaker, headphones or the SimulScope Bedside Auscultation System as shown in Figure 1.

**3.2 Volume Levels.** Each heart sound has been adjusted at the factory so that the sound does not migrate to another area. There are times, however, when the instructor may want the sounds to migrate such as having severe aortic stenosis migrate into the neck. In these cases, the instructor may alter the preset volume using the slide bars shown in Figure 3. By clicking on the SAVE button, these the audio volumes will be saved. To RECALL the factory settings, simply click on the RECALL button. Then use the RESET button to go back to the previously saved settings.

**3.3 Lectures.** Instructors can preprogram their lectures. Each Instructor may have multiple lectures each with a different name. To set up a lecture, from the Main Page (Figure 3), click on "Lecture Sequence" at the top of the page. This action brings up the lecture page (Figure 5) below.

**3.3.1 Click on Create.** This brings up the *Create Lecture* page (Figure 5). Fill in the name of the instructor and the Scenario or Lecture name. Then double click on the each sound number. The Sounds Menu will be seen. Double click on your selection. Wait a moment for the sound fill in in the sequence selected. When finished selecting the sounds, click on the word *Done*. *It is not necessary to set up a password for playing or*

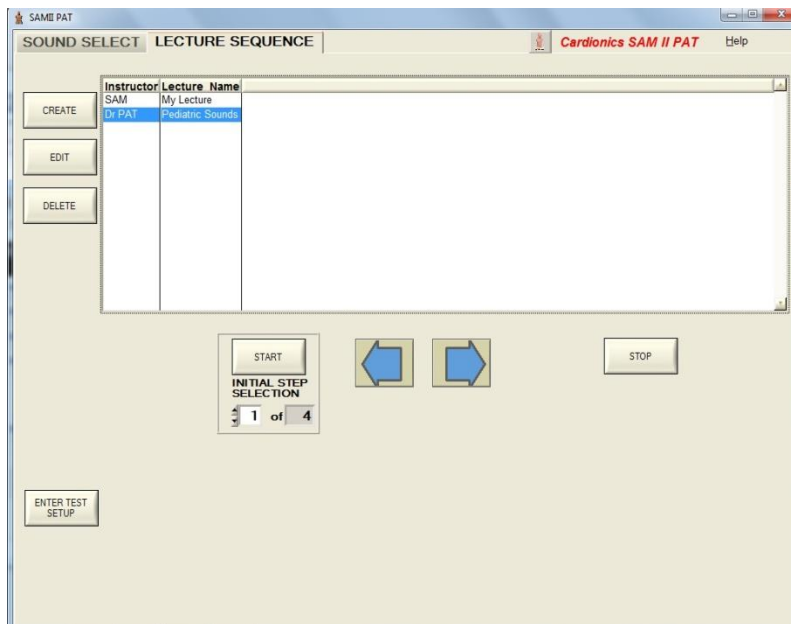


*editing a lecture, but you can prevent unauthorized editing. Please see below section 3.3.4 for instructions.*

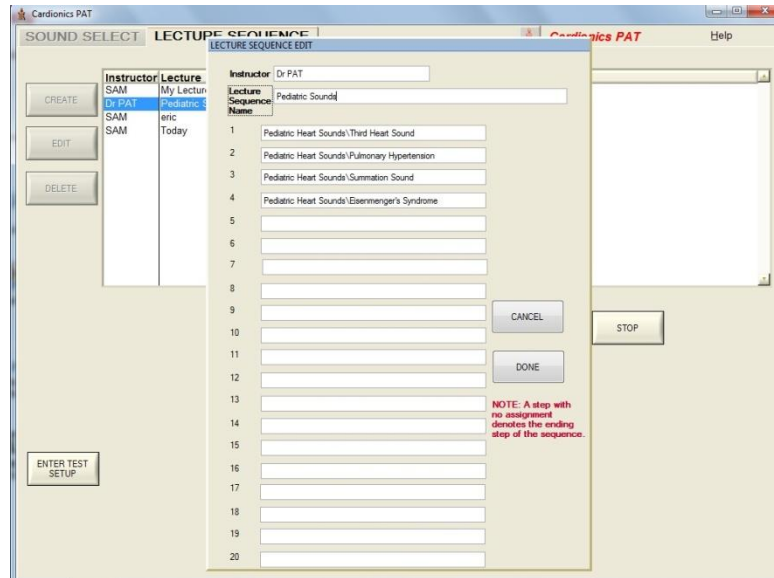
If you wish to give a lecture as a test, assign a Test Number to the Lecture. See section 3.3.4 below. A Test Number must be assigned to any lecture that you wish to give it as a test. To assign a test number, click on the Name of the Instructor, then click on Test Number. See page 12, Figure 17 below.

**3.3.2 Delete a Lecture Entry.** To delete a lecture entry, right click the mouse or select “Delete” from the selection omn the left side of the below dialog box..

**3.3.3 Playing a lecture.** To begin using your lecture, click on **Start** at the top of the below page (Figure 5).



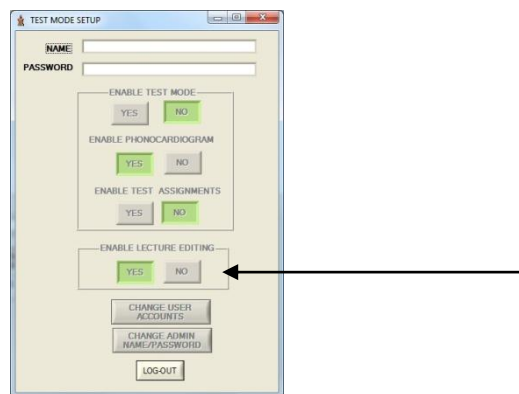
**Figure 5 Lecture Page**



**Figure 6 – Create Lecture Page**

**3.3.4 Editing a Lecture.** A lecture can be edited without a password. However, if the instructor wishes to secure his or her lecture from editing by another person, it can be done easily.

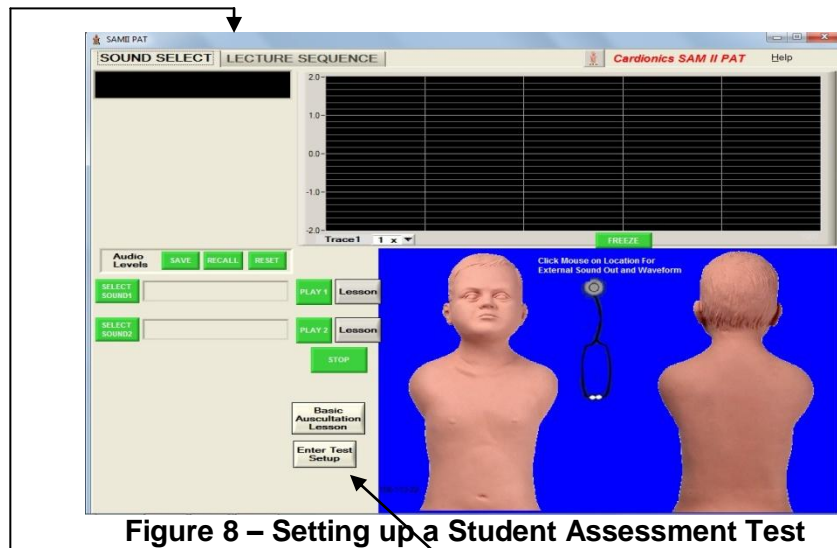
To secure your lecture, click on “Enter Test Set Up” as shown on Figure 8 below. If you wish to prevent your lecture from being edited by another party, click on NO in the dialog box shown below in Figure 7. If, at a later time, you wish to edit your lecture, open the below dialog box again and click on YES.



**Figure 7  
Test Mode Set up.**

**3.4 Setting Up Passwords for Student Assessment.** Setting up a test is much the same as setting up a lecture. This section deals with password set up. In Section 3.5, instructions for using the Student Assessment program are set forth. **Step 1** is to select an Administrator. For password set up and administration, each institution should assign an administrator to

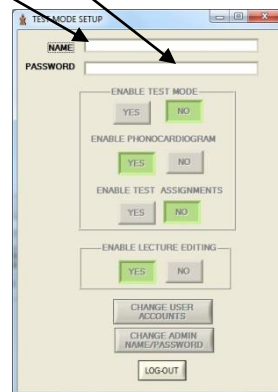
coordinate the tests, lectures and passwords. This feature allows any instructor to give different tests to different students, if desired. The Administrator can set up each lecture, monitor passwords and tests. If there is only one instructor, he/she will be the Administrator.



**Figure 8 – Setting up a Student Assessment Test**

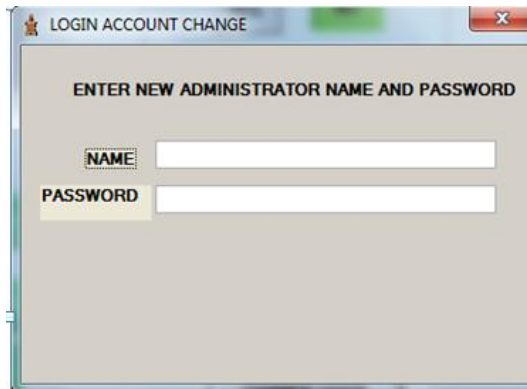
**Step 1.** Click on Lecture Sequence OR “Enter Test Set up”. The below screen (Figure 9) will then be seen.

**Step 2.** Setting up the Administrator’s password is a one-time routine. In the below dialog box, under NAME, enter PAT123 and press Enter. Use capital letters as it is case sensitive. In the dialog box labelled “Password”, enter GOPAT and press Enter. Use capital letters as the password routine is case sensitive. Both the name and password can be changed as shown below in section 3.4.2.



**Figure 9 Test Mode Setup**

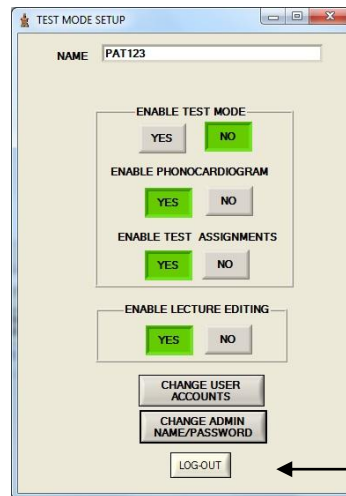
**Step 3.** We recommend that you change the Name and Administrative Password so you will be able to manage the Student Assessment function easily. To change the above Name and Password, click on “Change Admin Name/Password” (see Figure 9 above). When you click on the above tab, the below dialog box will be seen.



**Figure 10 – Change Administrator Name and Password dialog box**

Fill in the name of the person who is to be the password administrator. Select a password. You will be asked to enter the password twice. The computer will then tell you that the password has been successfully entered.

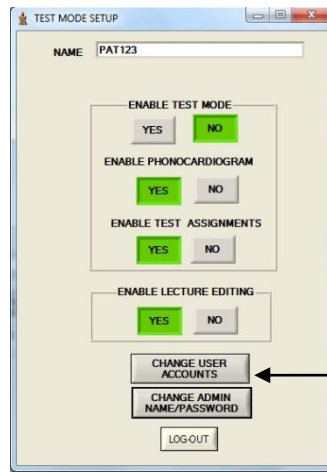
**Step 4.** After entering the new Name and Password, press Enter and the following dialog box will be seen with the new Name. To complete the password set up, click on the “log out” tab at the bottom of Figure 11.



**Figure 11 Test Mode Set up**

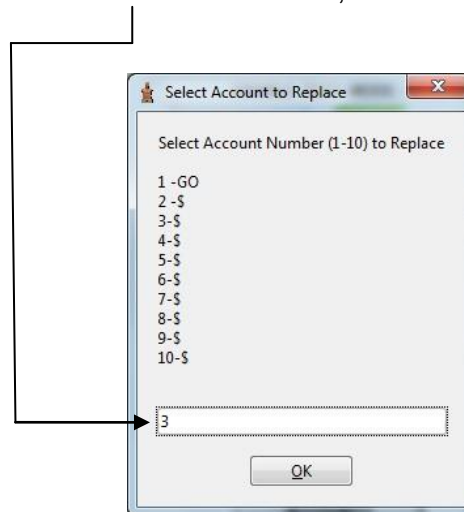
### 3.4.1 Adding Password for Additional Instructors

To add additional instructor passwords, click on “Change User Accounts” below.



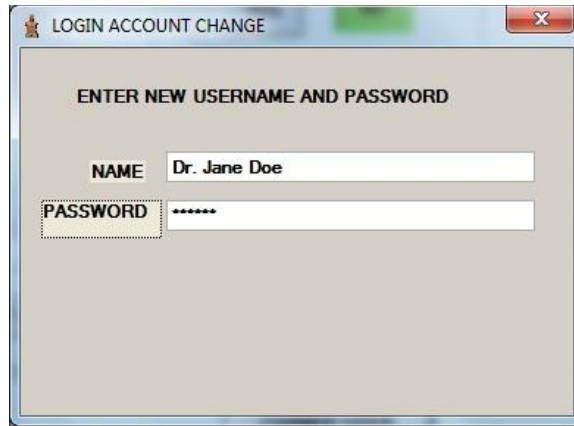
**Figure 12 Test Mode Set Up**

The Select Account Page will then appear as shown below in Figure 13. The first instructor in this example is John Smith. He is the first instructor signed in. To add a second or subsequent instructor, enter the next number here. In this case, we will enter the number 2 for instructor Mary Jones.



**Figure 13 – Lecture/Test Assignments**

In Figure 13 above, we will select Mary Jones as the second instructor by entering the number 2 and press Enter. The below dialog box will appear for entering Mary Jones name and password. The computer will ask you to enter the password twice and will then tell you that the password has been successfully entered. Mary Jones’ name will now appear below John Smith in the Instructor list (Figure 13).

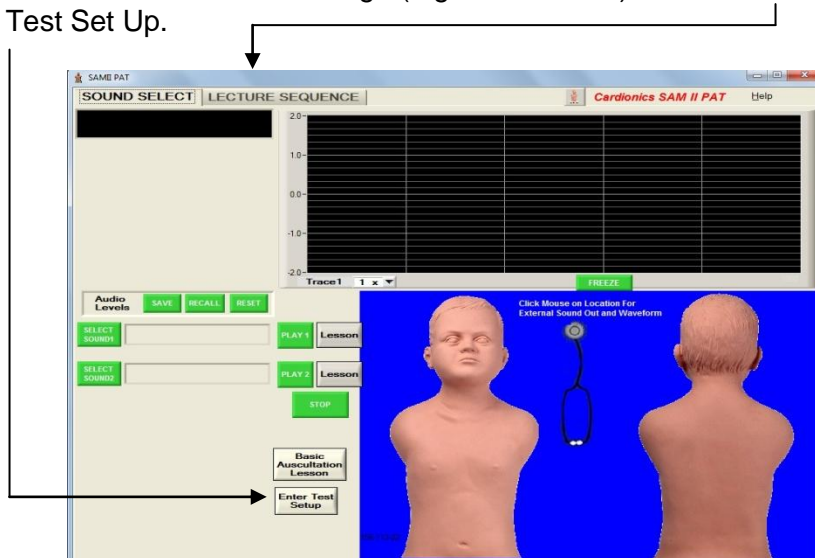


**Figure 14. Adding a new Instructor**

This completes the section on Password set up. To review, a password is required to use the Student Assessment Program or to edit a lecture. To give a lecture does not require a password.

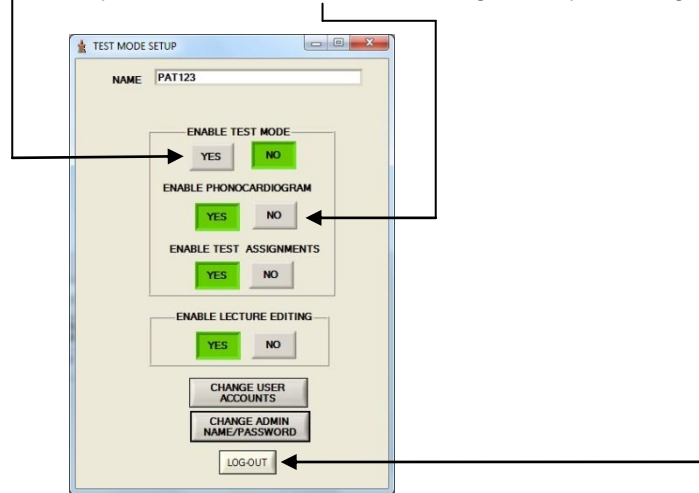
### 3.5 Giving a Test using the Student Assessment Program.

**Step 1.** From either the Sound Select Page (Figure 15 below) or the Lecture Sequence Page, click on Enter Test Set Up.



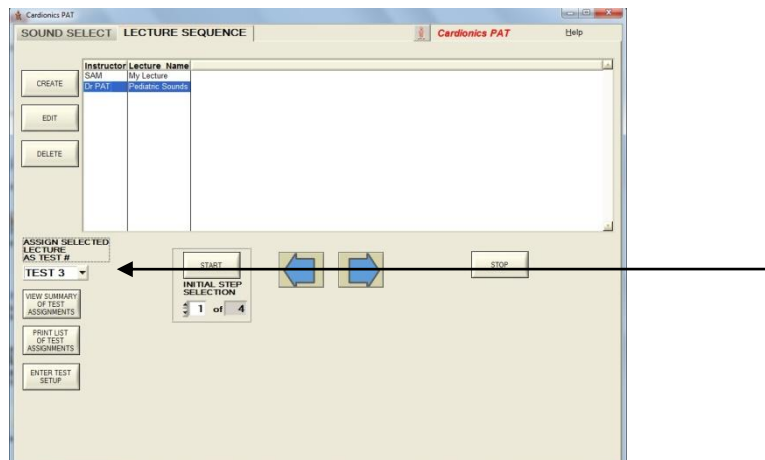
**Figure 15 Sound Select Page**

**Step 2.** Assuming that you have already set up a password (see section 3.4), enter your Name first. Then click on “Enable Test Mode. Next, decide if you want to display a phonocardiogram on your test. Make your selection here. Then Log Out by clicking here.



**Figure 16 Test Mode Set Up Page**

**Step 3.** A Test Number must be assigned to any lecture that you wish to give as a test. To assign a test number, click on the Name of the Instructor, then click on Test Number. If the instructor has multiple lectures, a test number can be assigned to each.

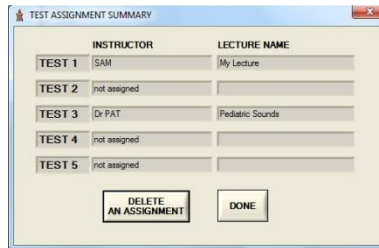


**Figure 17 Assigning a Test Number**

**Step 4.** Select Lecture Sequence (Figure 15 above). Then Select Instructor, Select Test number and click on Start (Figure 17).

**Step 5** After completion of the test, be sure to log out.

If you wish to review the test assignments, click on “View Summary of Test Assignments.” See Figure 18. The following dialog box of test assignments will be seen.



**Figure 18 Test Assignment List**

You may quit the test at any time by clicking on the “Quit Test” button.

**IMPORTANT.** When the test is complete, you will still be in the Test Mode. So you MUST go to the Test Setup, enter your Name and log out. Click on Test Set up, and then click on Log Out.

## 4.0 Group Listening

To teach with PAT in a classroom or auditorium, the Classroom Infrared Emitter (Cat. No. 718-0015), the SimulScope Bedside Auscultation System (Cat. No. 718-7003), the Auditorium Infrared Sound System (Cat. No.718-4006) or the CardioSim Digital Heart Sound Teaching System is recommended. With the SimulScope or Classroom Infrared Emitter, each listener must wear a Heartman<sup>®</sup> Infrared Headphone (Cat. No. 718-7040). A low frequency speaker system may also be used; however, speakers of any kind do not reproduce heart sounds well. Speakers can be connected by inserting the appropriate cable into the Headphone Output Jack (Figure 2).

### 4.1 Group Listening with the Classroom Infrared Emitter

Connect the output of the supplied E-Scope Electronic Stethoscope to the input of the Classroom Infrared Emitter using the supplied cable. The output is on the side of SAM (see Figure 2). The instructor and each student must wear a Heartman<sup>®</sup> Infrared Headphone. Place the E-Scope on SAM in the appropriate anatomical location. The sounds will be heard by the instructor and students simultaneously. Also,

### 4.2 Group Listening with the SimulScope

The SimulScope System is designed for group listening in a classroom or at the bedside. The typical System is supplied with six Heartman<sup>®</sup> Infrared Headphones. More can be added, if desired, up to a maximum of about 25.

The SimulScope is a small, portable, battery-operated (and/or line-operated), wireless infrared transmitter that picks up heart, lung and bowel sounds and transmits them via infrared energy to the wireless Heartman<sup>®</sup> headphone worn by each listener. The headphone senses the infrared signal and converts it into an audible sound. Each headphone has its own volume control.

After PAT has been set up (see section 2.0), place the stethoscope of the SimulScope on the manikin at the appropriate anatomical site. Each listener wearing a Heartman<sup>®</sup> Infrared Headphone hears the sounds. Adjust the volume of the SimulScope to maximum volume, then adjust the volume control knob on the HeartMan Headphone to a comfortable listening level.



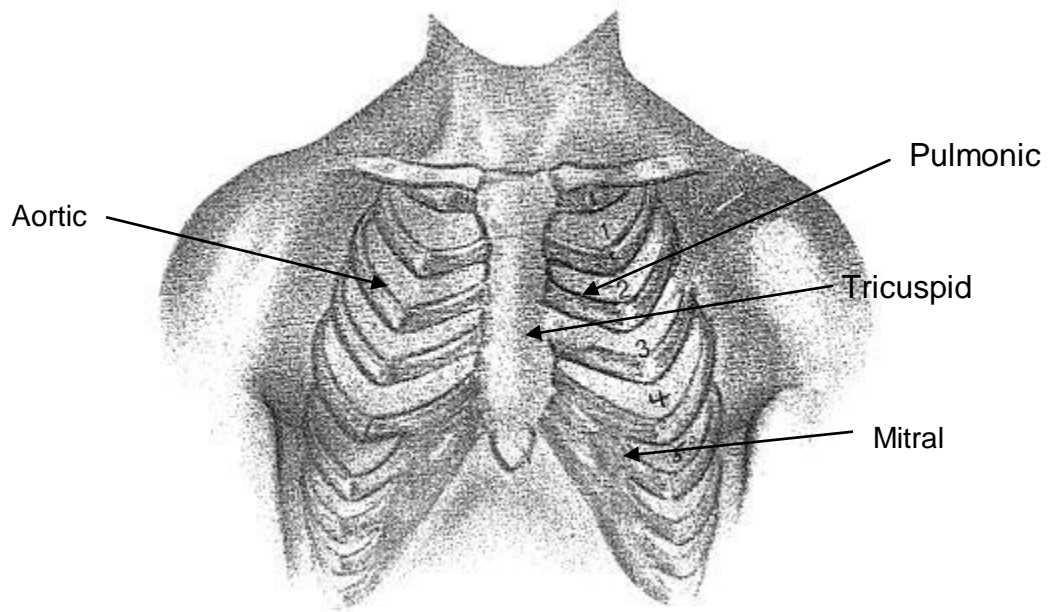
### **4.3 Large Group Listening with the Auditorium Infrared Sound System**

The Auditorium Infrared Sound System is designed for large group listening. The Auditorium Infrared Sound System operates in much the same manner as the SimulScope. To use with the infrared sound system,

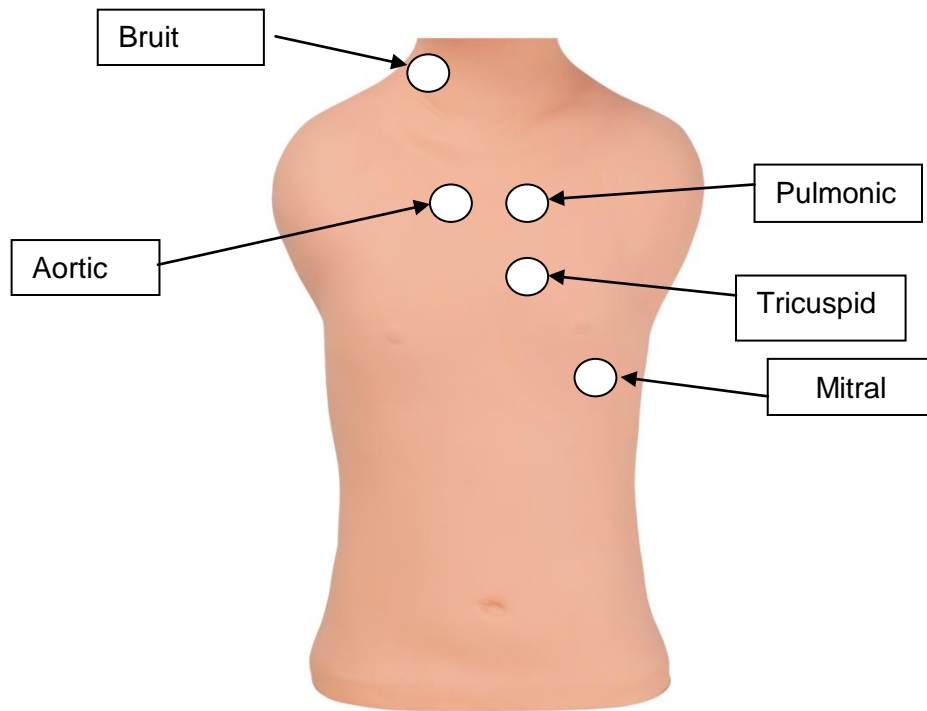
1. Connect the E-Scope Electronic Stethoscope to the Power Supply Module of the Auditorium Infrared Sound System. Follow the Operator's manual for the Infrared Sound System.
2. Place the E-Scope on the manikin in the appropriate manner and begin listening. Listeners will use the Heartman<sup>®</sup> Infrared Headphone.

### **4.4 Group Listening with a Low Frequency Speaker**

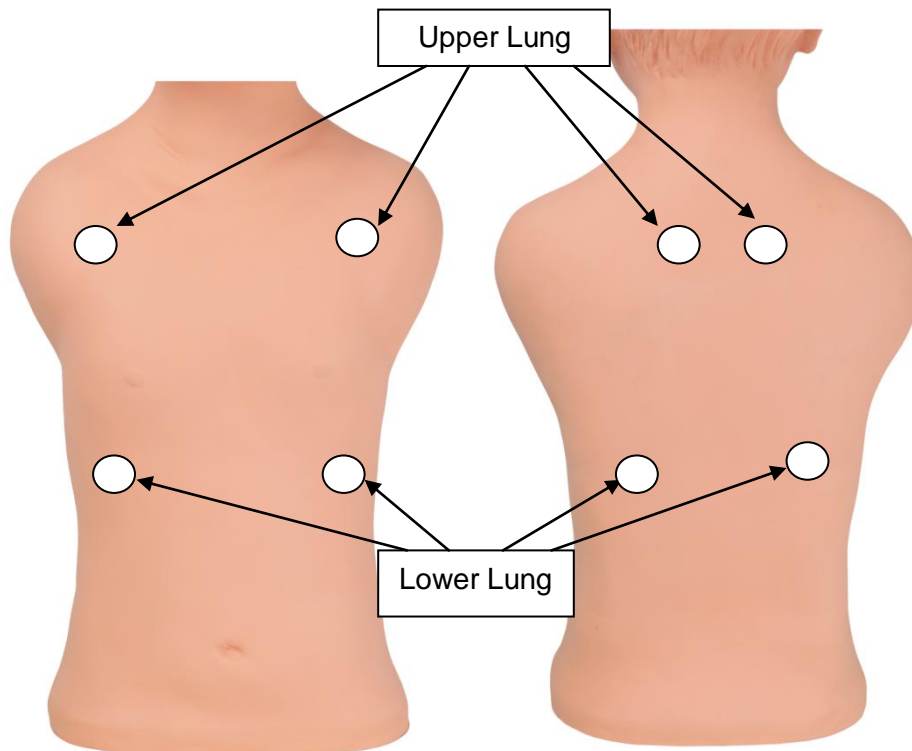
Connect the Cardionics Low Frequency Speaker, (cat. no. 718-9011) to the Headphone/Speaker Output on the right side of SAM (Figure 2).



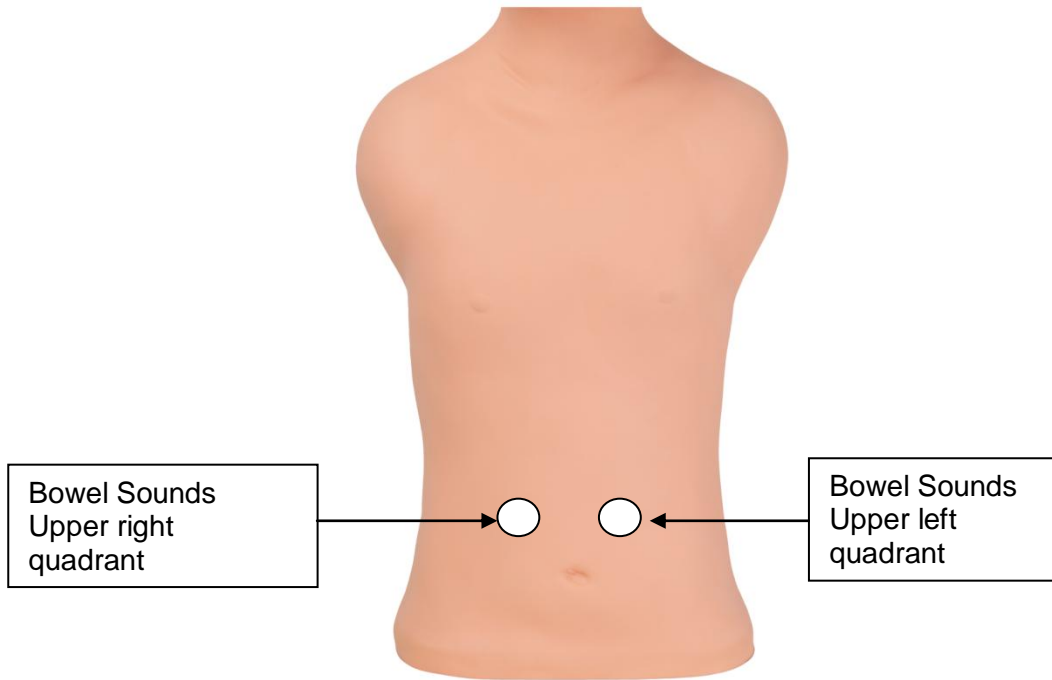
**Figure 19– Location of listening sites for heart sounds.**



**Figure 20 Heart, and Bruit Locations on PAT**



**Figure 21 Breath Sound Locations Anterior and Posterior Lobes**



**Figure 22 Bowel Sound Locations**

## Appendix A List of Sounds

<u>Major Groups</u>	<u>Description</u>
<b>Pediatric Heart Sounds and Variants</b>	Normal Heart Sounds - 60 bpm
	Normal Heart Sounds - 75 bpm
	Normal Heart Sounds - 90 bpm
	Normal Heart Sounds - 110 bpm
	Third Heart Sound - 75 bpm
	Third Heart Sound - 90 bpm
	Third Heart Sound - Gallop 110 bpm
	Fourth Heart Sound - 75 bpm
	Fourth Heart Sound - 90 bpm
	Physiological Splitting of S <sub>2</sub> w/ breath sounds
	Paradoxical Splitting of S <sub>2</sub> w/ breath sounds
	Summation Sound - 110 bpm
	<b>Pediatric Systolic Murmurs</b>
Aortic Stenosis, Mild - 90 bpm	
Aortic Stenosis, Severe (S <sub>2</sub> absent)– Example 1 - 75 bpm	
Aortic Stenosis, Severe (S <sub>2</sub> absent)– Example 1 - 90 bpm	
Aortic Stenosis, Severe, - Ex 2 - 75 bpm	
Aortic Stenosis, Severe, - Ex 2 - 90 bpm	
Atrial Septal Defect - 75 bpm	
Atrial Septal Defect - 90 bpm	
Congenital Aortic Stenosis - 75 bpm	
Congenital Aortic Stenosis - 90 bpm	
Innocent Systolic Murmur - 75 bpm	
Innocent Systolic Murmur - 90 bpm	
Innocent Systolic Murmur Vibratory - 75 bpm	
Innocent Systolic Murmur Vibratory - 90 bpm	
Mitral Valve Prolapse - 75 bpm	
Mitral Valve Prolapse - 90 bpm	
Mitral Regurgitation Mild - 75 bpm	
Mitral Regurgitation Mild - 90 bpm	
Primary Pulmonary Hypertension - 75 bpm	
Primary Pulmonary Hypertension - 90 bpm	
Pulmonary Stenosis - 75 bpm	
Pulmonary Stenosis - 90 bpm	
Tetralogy of Fallot - 75 bpm	
Tetralogy of Fallot - 75 bpm	
Ventricular Septal Defect - 75 bpm	
Ventricular Septal Defect - 90 bpm	

<b>Pediatric Diastolic Murmurs</b>	<p>Aortic Regurgitation Mild - 75 bpm  Aortic Regurgitation Mild - 90 bpm  Atrial Septal Defect W/Diastolic Murmur - 75 bpm  Atrial Septal Defect W/Diastolic Murmur - 90 bpm</p>
<b>Pediatric Systolic and Diastolic Murmurs</b>	<p>Aortic Stenosis and Regurgitation - 75 bpm  Aortic Stenosis and Regurgitation - 90 bpm  Acute Pericarditis - 75 bpm  Acute Pericarditis - 90 bpm  Coarctation of the Aorta - 75 bpm  Coarctation of the Aorta - 90 bpm  Eisenmenger's Syndrome - 75 bpm  Eisenmenger's Syndrome - 90 bpm  Primary Pulmonary Hypertension - 75 bpm  Primary Pulmonary Hypertension - 90 bpm</p>
<b>Pediatric Continuous Murmurs</b>	<p>Patent Ductus Arteriosus - 75 bpm  Patent Ductus Arteriosus - 90 bpm  Venous Hum - 75 bpm  Venous Hum - 90 bpm</p>
<b>Pediatric Ejection Sounds</b>	<p>Congenital Aortic Stenosis - 75 bpm  Congenital Aortic Stenosis - 90 bpm  Mitral Valve Prolapse - 75 bpm  Mitral Valve Prolapse - 90 bpm  Systolic Ejection Clicks - 75 bpm  Systolic Ejection Clicks - 90 bpm  Pulmonary Stenosis W/Intact Septum - 75 bpm  Pulmonary Stenosis W/Intact Septum - 90 bpm  Tetralogy of Fallot - 75 bpm  Tetralogy of Fallot - 90 bpm</p>
<b>Other Pediatric Heart Sounds</b>	<p>Pericardial Rub - 75 bpm  Pericardial Rub - 90 bpm  Coarctation of the Aorta - 75 bpm  Coarctation of the Aorta - 90 bpm  Congestive Heart Failure - 75 bpm  Congestive Heart Failure - 90 bpm  Hypertrophic Cardiomyopathy - 75 bpm  Hypertrophic Cardiomyopathy - 90 bpm  Tetralogy of Fallot - 75 bpm  Tetralogy of Fallot - 90 bpm</p>

<b>Complex Anomalies</b>	Eisenmenger's Syndrome - 75 bpm Eisenmenger's Syndrome - 90 bpm Ebstein's Anomaly - 90 bpm
<b>Pediatric Breath Sounds</b>	Normal Vesicular Breath Sounds - 24 bpm Bronchial Breath Sounds - 24 bpm
<b>Pediatric Adventitious Breath Sounds</b>	Crackles Fine Crackles Medium Crackles Very Coarse Wheeze Expiratory Wheeze Low Pitched Rhoncus
<b>Diseases or Conditions of the Lung</b>	Pleural Rub Right Lung, Left Normal Stridor Asthma Emphysema Chronic Bronchitis Atelectasis Pneumothorax Pulmonary Edema Pneumonia Lobar Posterior Right Lobe
<b>Bowel Sounds</b>	Normal Bowel Sounds - 4 year Old Hyperactive - 2 year old Hyperactive - 10 year old Diarrhea

## 4.0 Appendix B – Troubleshooting

### PROBLEM

Sound is transmitted into areas other than anatomically correct

No sound is heard

### POSSIBLE SOLUTION

If sound is heard in an incorrect area, using the slide volume controls turn the volume **DOWN** on each sound until no sound is heard. Then increase the sound on the desired area gradually until the proper sound is heard. Use Slide bars (Figure 3)

Press the stethoscope head a little harder.  
Move the stethoscope by inching it around the area of the sound.  
Turn *UP* the volume. Use Slide bars (Figure 3)



## Appendix C - Limited Warranty

Cardionics warrants this product to be free of manufacturing defects in material and workmanship for a period of one year from the date of original consumer purchase or from an authorized dealer.

### **What this warranty covers:**

1. Cardionics warrants SAM, the Student Auscultation Manikin and all accessory components to be free of manufacturing defects in material and workmanship for a period of one (1) year from the date of original consumer purchase from Cardionics or an authorized dealer.
2. This written warranty is limited to the original consumer purchaser, transferable only by written authorization of Cardionics.
3. All warranties, expressed or implied, made by Cardionics, including warranties of merchantability and fitness are limited to the one (1) year period of this warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
4. This warranty is limited to repair of the product or replacement thereof, at the discretion of Cardionics, Inc. Calibrations are considered normal maintenance and are not included in the one year warranty.

### **What this warranty does not cover:**

1. This warranty does not cover defects or damage resulting from use of the product other than its normal, intended and customary use. This warranty does not cover defects or damages from abnormal use, abnormal conditions, improper storage, and exposure to moisture or liquid, unauthorized modifications, repairs made by unauthorized personnel, unauthorized connections (those not described in this manual), misuse, neglect, abuse, accident, alteration, improper installation or other acts which are not the fault of Cardionics, including damage caused by shipping.
2. SAM units or components which have had the serial number, removed or made illegible.
3. Damage resulting from use of non-Cardionics approved accessories.

### **Policies concerning service.**

Shipping charges. The customer shall bear the cost of shipping the product to Cardionics. Cardionics will pay the return freight within the United States. Customers outside the US will be asked to pay for shipping in both directions. This includes both warranty and out-of-warranty service. We suggest that you insure the package

Authorization for return. Before sending equipment for repair, please call Cardionics, at 281-488-5901 or in the U.S. or Canada 1-800-364-5901 for a return authorization number. This will help us track your repair.

Reason for return. Please include a note with your name, address, telephone and email address and what you believe the problem to be.

Packing for return. Equipment requiring repair should be suitably packaged for shipping.

Where to obtain service. Ship package prepaid to Cardionics, 910 Bay Star Blvd, Webster, Texas 77598 USA. We will endeavor to complete repairs within fifteen (15) working days from date of receipt of product by Cardionics.

Out-of-warranty service. . When a product is returned for service that is out-of-warranty, Cardionics will call you to obtain your authorization prior to making the repair. We will ask for a credit card payment at the time of the call. If the repair is from an authorized Cardionics dealer or institution, Cardionics will ask for a purchase order number.

### **Consequential Damages**

Cardionics shall not be liable for incidental or consequential damages arising from the use or failure of this product, including injury to persons or property. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state.

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