



SAM4 – AUSCULTATION MANIKIN

USER MANUAL

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SAM4 – AUSCULTATION MANIKIN

> INTRODUCTION

Thank you for purchasing the Student Auscultation Manikin (SAM4), an interactive manikin for teaching students the art of auscultation.

> SAFETY PRECAUTIONS



Attention: Read the manual and understand all warnings and cautions before using the manikin for the first time.

Caution when using SAM4 Manikin:

- **Water Hazard:** Avoid immersing any system connectors in fluids. SAM4 has no degree of protection against ingress of water.
- **Cleaning:** Before cleaning, disconnect all cables and the AC power. Clean with a standard 70% Isopropyl Alcohol swab or wipe. Do not submerge any part of the SAM4 in liquid. This product does not contain natural rubber latex.
- **Heat Dissipation:** Ensure nothing is wrapped around the manikin's neck that could block heat from escaping.

> PRODUCT DESCRIPTION

The SAM4 is a fourth-generation, interactive half-body male manikin designed for teaching auscultation skills. It's ready to use straight out of the box when paired with a smartphone or tablet (iOS or Android), which are not included.

Auscultation Sites: SAM4 contains 15 auscultation sites that simulates heart, lung, bowel, and bruit sounds, plus a carotid pulse on the left side. Compatible with both acoustic and electronic stethoscopes.

Control and Simulation: SAM4 Operates via a dedicated app on a connected smartphone or tablet through Bluetooth. The sounds are selected on a library and played on the manikin. The SAM4 Online app is available on iOS devices in the App Store, and for Android devices in the Google Play Store.

Enhancements and Aids: Offers volume control for different auscultation sites and visual aids like a phonocardiogram. The Plus Version includes echocardiogram video visualization, a library of real sounds, and Dynamic Sounds feature for setting heart BPM easily.

Rotational base: SAM4 comes with a 360-degree rotational base, making it easier than ever to demonstrate auscultation points and position the manikin precisely as needed.

Bluetooth connection: The Bluetooth connection allows SAM4 to be controlled by a smartphone or tablet. It allows also to connect with compatible sound devices such as earbuds or regular sound boxes with the minimum configuration: Bluetooth 5.0, A2DP Profile and SBC Codec.

SAM4 – AUSCULTATION MANIKIN

> DELIVERY CONTENT

- SAM4 Manikin
- SAM4 Power Supply with interchangeable plugs

> SAM4 INSTALLATION

SAM4 Installation and powering the system

1. Place the SAM4 manikin on a flat table or desk.
2. Connect the SAM power supply to the SAM4 and wall outlet.
3. Locate and press the SAM4 power (on/off) located on the left side of the base. The power switch will illuminate for some seconds alternating between green and red. After 40 seconds, a green light will blink every 5 seconds, indicating that the manikin is ready to connect to your smart-phone or tablet.

> APPLICATION DOWNLOAD

Simply download the SAM4 Online application to your smartphone or tablet either from the Apple App Store or Google Play.

> GETTING STARTED WITH THE SAM4 APP

With SAM4 powered on, open your SAM4 application on your smartphone or Tablet. Click on the application and on home screen Search for Nearby Manikins or Scan a QR Code.

*If you have a SAM4 Plus, an Internet connection is needed on your smartphone or tablet when using the manikin for the first time.

1 - Connecting the manikin to your device:

- **Via nearby devices:** Click on this option and you will see a list of the manikins identified by the product Serial Number (the serial number can be seen on a label on the left side of the manikin's base). Click on the Manikin-Serial Number to connect and a pop-up will confirm the connection. Red lights will blink on the manikin as a visual confirmation as well.
- **Scan a QR Code:** Select this option to connect to the manikin using your device's camera. Point the camera to the QR code printed on the base of the manikin.

2 - A pop-up will confirm the connection. Red lights will blink on the manikin as a visual confirmation as well.

3 - Select 'Launch Control' to open the Auscultation Player.



4 - **Lower portion:** Sound library is available on the right side icons and the name of the selected sound is presented under Sound A or Sound B.

Middle portion: Digital representation of the manikin and the auscultation points available for a selected sound.

Upper portion: When a sound is selected from the library, the phonocardiogram is represented here.

5 - The 'Turning' button on the upper left corner turns the back of the digital manikin.

6 - The 'Setting' button will open additional selections:

Show All: Quick select all the options

Show Name: To visualize Category Names

Show Abbreviations: To visualize the Initial Letters within the Auscultation Points

Show Sites: To visualize the auscultation points

Show Lights on Manikin: Turn on/off the lights on auscultation points

Manikin Options: To visualize Male and Female digital manikin in front or back view.



Sound settings

7 - Connect a Bluetooth device such as a speaker or earbuds.

- Always select 'Reset Paired Speakers' to unpair any device paired previously
- Put your speaker or earbuds in pairing mode
- Select 'Enable Wireless Speaker' to connect to your device and wait for 30 seconds before selecting sound.

8 - Select the button on the right of Sound A or Sound B to pick one of the sounds in the library.

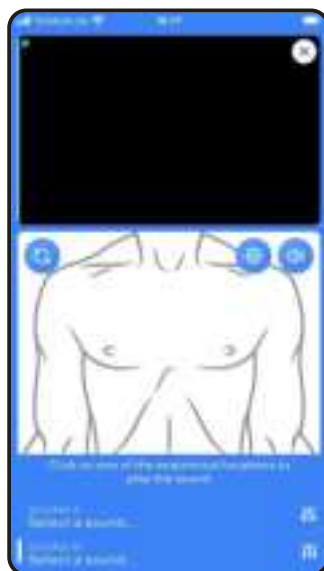
9 - The sounds are separated in 5 categories: Heart, Bruit, Combination, Breath and Bowel.

The SAM4 Plus version contains additional features for some sounds, indicated by a colored dot on the right side.

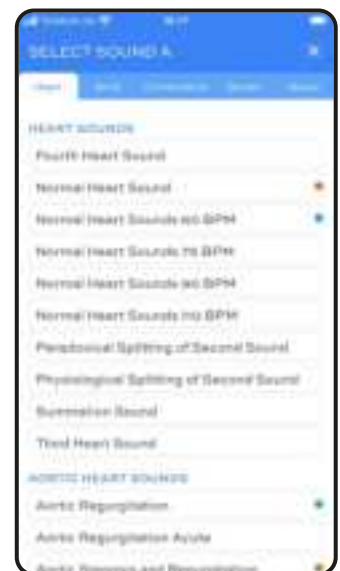
- Dynamic Sounds (Brown)
- Echocardiogram Videos (Blue)
- Real Sounds (Red)



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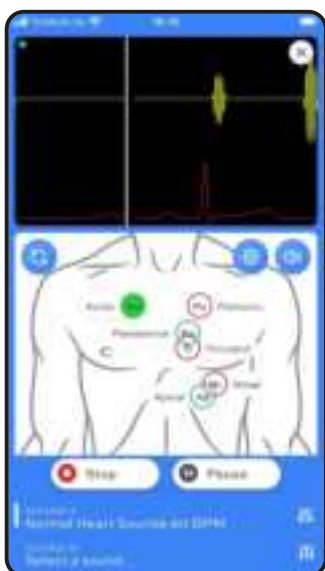


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10 - On this example, in Sound A is selected a 'Normal Heart Sounds 60 BPM' and the auscultation sites are presented on the digital manikin.

Pick one of the auscultation sites to play the sound and the phonocardiogram is present together.

11 - Selecting one of the blue sites on this sound will open a pop up with an echocardiogram video. Feature available only for SAM4 Plus version.



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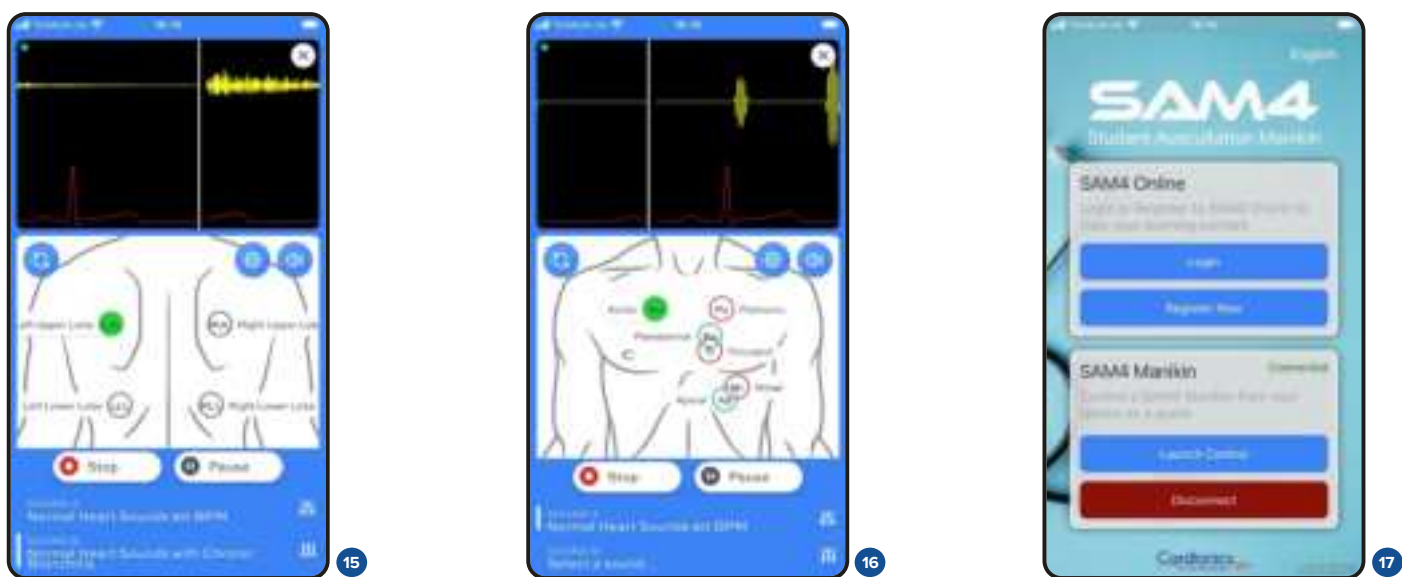
- 12** - Pick an auscultation point on the virtual manikin and change the parameters related to the sound by clicking on the volume settings. On this representation, a dynamic sound (Available only for SAM4 Plus version) can have the Rate changed from 50 to 150BPM. For all sounds, additional adjustments in the volume are available to accentuate specific sounds, such as Aortic, Pulmonic, Tricuspid and Mitral.
- 13** - On this example, on Sound B is selected a 'Normal Heart Sounds with Chronic Bronchitis' and both Heart and Lung sounds are present on Manikin.
- 14** - Select one of the lung sounds to hear from front or back of the manikin.



- 15** - Select the Turning button to visualize the auscultation points on the back of the manikin.

Disconnecting the application and manikin

- 16** - Select the X on the top right on the main screen
- 17** - Then click on 'Disconnect'. Lights will blink once in the manikin as an indication that it is disconnected. Smartphone or Tablet is now disconnected. Another smartphone or tablet may be connected or to turn Manikin off press power button. Power button will turn red then power off.



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> CLEANING

The SAM4 manikin can be cleaned using a standard alcohol swab or wipe (70% Isopropyl Alcohol). Before cleaning unplug all cables including power from the manikin. Do not use excessive liquid or immerse any part of the SAM manikin. Doing so may result in moisture getting inside the unit.

> TRANSPORT AND STORAGE

The SAM manikin can be safely stored or transported with the following environmental conditions:
-20°C to 65°C (-4°F to 149°F), <95% relative humidity.

> OPERATING CONDITIONS

Operating Temperature: 32°F to 104°F (0°C to 40°C)
Humidity: 0 – 95% Relative Humidity
Altitude: <6,561 Ft. (<2,000 Meters)

> LIMITED WARRANTY

For questions or in need of service, call your Sales Representative and inform your order number, invoice number and Serial Number on the left side of the manikin. Do not send the product back unless instructed.

Warranty Coverage

Duration and Scope: Cardionics guarantees this product against manufacturing defects in materials and workmanship for a period of five (5) years from the original purchase date, when bought from Cardionics or an authorized dealer.

Original Purchaser: This warranty is exclusively for the original consumer purchaser and is transferable only with Cardionics' written consent.

Limitations: The extent of Cardionics' warranties, including those of merchantability and fitness for a particular purpose, is confined to the five-year warranty period. Note: Some jurisdictions do not allow limitations on the duration of an implied warranty, so this restriction may not apply to all users.

Remedy: Cardionics will either repair or replace the product, at its discretion, under this warranty.

Exclusions

Improper Use: The warranty does not cover defects or damage from non-standard use, exposure to elements, improper storage, unauthorized modifications, repairs by non-approved personnel, misuse, neglect, accidents, alterations, or improper installation.

Serial Number Tampering: Products with removed or illegible serial numbers.

Non-Approved Accessories: Damage from using accessories not endorsed by Cardionics.

Third-Party Products: Items not manufactured by Cardionics are excluded but may be covered under the original manufacturer's warranty.