HESS Stethoscope Accessory

Healthcare Education Simulation Station

Revised 7/1/2025

www.BetterNurseEducation.com

PLEASE READ

DISCLAIMER

The information in the HESS is not intended or implied to be a substitute for professional medical expertise, advice, diagnosis or treatment.

There is no representation and no responsibility for the accuracy of information contained within the HESS.

The HESS is only intended to be used as an instructional aide by qualified medical educational professionals.

HESS Stethoscope Adapter Cable and Body Sounds App

The HESS Ink Sensor Smart Cable **must be used within** the HESS Stethoscope Adapter Cable.

To use the Stethoscope Adapter Cable, the Settings of the Sounds Device app must have the "Enable Smart Cable" and "Enable Smart Location" options set to "Yes".

By rubbing a small amount (about the size of a dime or quarter using a QTip) of Luminescent Ink at the spot on a Manikin or Standardized Patient where a real Stethoscope diaphragm could be placed to hear body sounds, the Stethoscope Adapter will be able to "see" the Luminescent Ink and cause the Body Sounds App to play the sounds. The Luminescent Ink is usually invisible to the eye requiring the learner to know the correct placement of the Stethoscope Adapter to hear the sound.

Real Electronic Stethoscope

Stethoscope Adapter with Ink Sensor Smart Cable

Luminescent Inks

The Luminescent Ink that the Stethoscope Adapter Cable was designed to use is available from **www.directglow.com**. Be sure to use **ONLY** use the type that is **safe for use on skin** and **NOT the type designed for printers or industrial use**.

A UV Flashlight can be extremely helpful in seeing things when using Luminescent Inks on surfaces.

See **www.BetterNurseEducation.com** for more information about use of the Ink Sensor Smart Cable itself.

To attach the HESS Ink Sensor Smart Cable into the Stethoscope Adapter Cable

1. Insert the USB end of the HESS Ink Sensor Smart Cable into the female USB Adapter port at the **end** of the Stethoscope Adapter Cable.

2. Then slide the HESS Ink Sensor Smart Cable into the Stethoscope Chest Piece Sleeve so that the end of the HESS Ink Sensor Smart Cable is flush with the base of the Stethoscope Chest Piece Sleeve.

3. Finally, attach the USB/Audio "Tether" Cable between the tablet USB/audio ports and the **middle** USB/audio ports of the Stethoscope Adapter Cable.

If the Body Sounds App is running you will need to provide Permission in a popup window to use the attached Stethoscope Adapter Cable.

Once the Stethoscope Adapter Cable is attached and communicating properly - the text in the blue toolbar at the top of the Body Sounds App will be green rather than white. This green text is the "Smart Cable Indicator" that confirms the Ink Sensor Smart Cable is working.

This text should stay green for the duration of the learning exercise. The text may briefly turn blue when a Bluetooth transmission is received – or even briefly turn white – but it should quickly return to green to indicate proper communication with the Ink Sensor Smart Cable.

If the text remains white or blue for more than a second, the Ink Sensor Smart Cable is not communicating properly and should be reset using one of the following steps (AND any vitals should then be re-transmitted to the Body Sounds App):

a. Try detaching and then reattaching the USB cable as in the initial installation.
b. Try closing and restarting the Body Sounds App and reattaching the USB cable.
c. In very rare cases, try powering off the Android tablet and then restarting it.

The Body Sounds App needs to "learn" the color(s) of the Luminescent Ink after it has been applied to the "skin" (Manikin or Standardized Patient) surface.

Setting The Stethoscope Adapter Cable Marker Color

To make the Body Sounds App "learn" a Marker color, use "Set Markers" in the Body Sounds App options via the Android "3 dots menu" in the upper right corner of the Body Sounds App screen. The "learned" Marker color will be saved in the Body Sounds App – but will ONLY function properly on the **specific Manikin's/ Standardized Patient's** "skin" surface and ONLY using the **same Ink Sensor Smart Cable within the Stethoscope Adapter** – so if the Stethoscope Adapter Cable is used with another Manikin or Standardized Patient, the Marker color will need to be "re-learned" for that Manikin's/ Standardized Patient's "skin" surface.

The Ink Sensor Smart Cable must **already be properly connected** to use the "Set Markers" function.

1. Choose "Set Markers" from the options menu via the Android "3 dots menu" in the upper right corner of the Body Sounds App screen.
2. Once in the Set Markers option, **Detach and Re-Connect** the Stethoscope Adapter Cable from the USB port of the tablet - and **provide Permission in a popup window** to use the Smart Cable. This is required to comply with Android permissions for use of an attached device.
3. Touch "**FIND MARKER**" – then hold the Stethoscope Adapter Cable **completely** over the Marker spot to be learned. Wait to hear the 3 beeps indicating that the Marker spot color has been learned.
4. Touch "**SAVE AS MARKER x**" to save the Marker color learned as Marker 1, 2 or 3.
5. Repeat Steps 3 and 4 for each Marker color to be learned.
6. **Detach** the Stethoscope Adapter Cable from the USB port, then use the Android "back" arrow to return to the Body Sounds App screen.
7. On the Body Sounds App screen, **Re-Connect** the Stethoscope Adapter Cable to the USB port - and **provide Permission in a popup window** to use the Smart Cable. This is required to comply with Android permissions for use of an attached device. (Watch for the "green" text…)
8. Transmit Body Sounds Vitals to the Body Sounds App.
9. Test the Stethoscope Adapter Cable on areas of the surface that do not contain a Marker color spot - and then on each Marker color spot - to make sure each color has been learned correctly.

Notes:

1. Turning "View Marker Sensor Data" on in the Settings can help with testing that the Marker color was learned properly. The Sensor Data will display:
    - the currently sensed color components (R: G: B: C:)
    - if the sensor is currently sensing "darkness" (S:true),
    - if the sensor is currently sensing the saved learned Marker color (M:true).
    - each saved learned Marker (M1, M2, M3) color components (R: G: B: C:)
2. If the R: G: and B: components are not at least 20 with a C: of at least 60, the sensor is likely not reading any replicable Marker color under UV light and results can be unpredictable.

A bright white LED will turn on briefly after the Stethoscope Adapter Cable is connected – and then turn off. This is normal. The white LED is not used during operation.

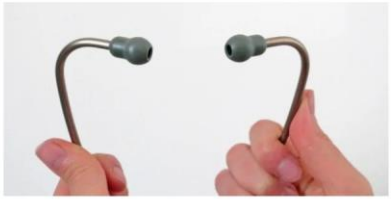
PLEASE READ

THE STETHOSCOPE ADAPTER CABLE EARPIECES ARE MORE DELICATE THAN THOSE OF A REAL STETHOSCOPE

The earpieces of the Stethoscope Adapter Cable are really “earbuds” like those used for a smartphone. They are more delicate than the earpieces of a real stethoscope – and they contain electronic parts.

DO NOT HANDLE THE STETHOSCOPE ADAPTER BY THE EARPIECES. Try not to lift, carry, suspend or otherwise handle the Stethoscope Adapter by the earpieces. Try not to touch, bump or cause impact to the earpieces.

For the earpieces: “ears = yes”, “fingers = no”



If you can see the holes in the ear piece, it’s the wrong way around

Can’t see the holes? This is the right way around.

The Stethoscope Adapter earpieces will ONLY produce good sound if the earpieces are oriented properly in the ears. The earpieces should point “forward” as in the lower picture on the left.

The Stethoscope Adapter earpiece direction cannot be “re-oriented” or “reversed” as with some real stethoscopes. Please do not twist or attempt to “re-orient” any part of the Stethoscope Adapter.

WARNINGS: About Luminescent Inks

1. BEFORE USING INKS ON MANIKINS, TASK TRAINERS OR OTHER SIMULATION ITEMS WITH SIMULATED SKIN OR SYNTHETIC SURFACES

The DirectGlow (**www.directglow.com**) skin safe invisible and luminescent inks have been developed for use on human skin. On human skin the inks intentionally will not wash off easily, but can be removed with effort.

If you choose to use the inks on manikins, task trainers or other simulated items with simulated skin or synthetic surfaces, the inks might be difficult to remove or permanently stain the surface.

You should TEST any inks you plan to use on a small spot in an inconspicuous area of the surface – AND let the ink dry for at least 30 minutes – to determine if the ink can be satisfactorily removed if necessary.

It has been observed in some cases that the "redder" inks (Red, Pink, Yellow) have a greater tendency to be more difficult to remove, while the "bluer" inks (Green, Blue) have a greater tendency to be easier to remove.

It has been observed in some cases that the use of Isopropyl Alcohol is one of the more successful cleaning approaches. For difficult to remove ink, it has been observed in some cases that 8+ hours of strong, direct sunlight may cause the ink to noticeably fade.

2. Ink spots can be too "bright"

The sensor used in the Smart Doppler Ultrasound Probe uses "bright" light to turn off the sensor so that the inks are only sensed when the probe is in darkness – when the probe is directly against the skin surface.

In some cases, the ink may produce such a bright color that the Smart Doppler Ultrasound Probe will actually turn itself off. Some very light skinned manikins may cause this situation – especially when using "red" inks.

The sensed color values on the screen in the diagnostic mode of the Sounds app (selected in the Settings) will indicate the Smart Doppler Ultrasound Probe repeatedly turning itself off and on.

A potential remedy for this situation is to "dull" the ink spot with a minimal amount of isopropyl alcohol until the Smart Doppler Ultrasound Probe does not turn itself off due to the ink spot brightness.