HESS Ink Sensor Smart Cable For Doppler

Healthcare Education Simulation Station

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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 Ink Sensor Smart Cable

The HESS Ink Sensor Smart Cable was created to attach to an Android tablet running the Doppler App.

To use the Ink Sensor Smart Cable, the Settings of the Doppler App must have the "Enable Smart Cable" option set to "Yes".

To attach the Ink Sensor Smart Cable, insert the USB plug of the Ink Sensor Smart Cable into a suitable USB Adapter cable - which should be plugged into the USB port of the tablet running the Doppler App. Such a USB Adapter cable allows attachments with full sized USB plugs to be used with tablets – which usually have smaller "mini-USB" or "micro-USB" ports.

A USB extension cable will also likely be desired in this setup (e.g. a 6 ft USB extension cable) to serve as the cord to allow the learner to use the Ink Sensor Smart Cable like a Doppler probe.

If the Doppler App is running you will need to provide Permission in a popup window to use the attached Ink Sensor Smart Cable.

Once the Ink Sensor Smart Cable is attached and communicating properly - the text in the blue toolbar at the top of the Doppler 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 Doppler App):

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

HESS Ink Sensor Smart Cable

If a surface Marker color is also going to be used, the "Enable Smart Location" option must be 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 Doppler Ultrasound Probe could be held to find a pulse, the Ink Sensor Smart Cable will be able to "see" the Luminescent Ink and cause the Doppler App to display the Doppler Vitals and play the Doppler audio sounds. The Luminescent Ink is usually invisible to the eye requiring the learner to know the correct placement of the Ink Sensor Smart Cable to hear the sound.

Luminescent Inks

One source of Luminescent Ink that the Ink Sensor Smart Cable can 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.

HESS Ink Sensor Smart Cable

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

Setting The Ink Sensor Smart Cable Marker Color

To make the Doppler App "learn" a Marker color, use "Set Markers" in the Doppler App options via the Android "3 dots menu" in the upper right corner of the Doppler App screen. The "learned" Marker color will be saved in the Doppler 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** – so if the Ink Sensor Smart 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 Doppler App screen.
2. Once in the Set Markers option, **Detach and Re-Connect** the Ink Sensor Smart 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 Ink Sensor Smart 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**" to save the Marker color learned.
5. **Detach** the Ink Sensor Smart Cable from the USB port, then use the Android "back" arrow to return to the Doppler App screen.
6. On the Doppler App screen, **Re-Connect** the Ink Sensor Smart 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…)
7. Transmit Doppler Vitals to the Doppler App.
8. Test the Ink Sensor Smart Cable on areas of the surface that do not contain the Marker color spot - and then on the Marker color spot - to make sure the 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).
    - the saved learned Marker 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.
3. A bright white LED will turn on briefly after the Ink Sensor Smart Cable is connected – and then turn off. This is normal. The white LED is not used during operation.