

PhysioDetect User Guide



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OVERVIEW

This user guide highlights how to utilize the PhysioDetect application and associated hardware with the PhysioTel Digital system. This document will provide an overview of the system components, application structure, and basic operation of the device.

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WELCOME

Congratulations on joining the community of users worldwide who rely on DSI's products to perform preclinical physiologic research. Thank you for choosing to work with DSI. We are committed to providing you with quality products and services.

This manual will help you get to know your PhysioDetect. The structure of the manual was designed to sequentially guide you through using PhysioDetect to help setup your PhysioTel Digital system.

WHAT YOU WILL BE LEARNING

1. Device hardware and software application overview.
2. Role of the device within the PhysioTel Digital system.
3. How to use the PhysioDetect software application to locate implants.

OVERVIEW

PhysioDetect is a product developed by DSI for use with its PhysioTel Digital platform. The PhysioDetect application and associated hardware serve as a tool to aid in the use of the PhysioTel Digital telemetry data acquisition system. PhysioDetect acts as an associated receiver and listens for communication from the PhysioTel Digital (Digital) implants. By doing this, PhysioDetect aims to answer certain questions regarding PhysioTel Digital systems such as:

- Did the magnet swipe work correctly to turn the implant on?
- What frequency is the implant transmitting on?
- What is the estimated remaining battery life for the detected implants?

PhysioDetect supplies the user with information that is predominantly helpful in setting up new experiments that are utilizing Digital telemetry devices. Additional features help to maintain an ongoing experiment. The goal for PhysioDetect is to provide a portable solution to allow users to identify when Digital implants are turned on and utilize the appropriate identifying information to streamline the data acquisition set up process.

PhysioDetect consists of three components:

- A customized electronic tablet
- A rugged case with an integrated receiver
- PhysioDetect IOS application

HARDWARE



TABLET

The main functional component of PhysioDetect is the electronic tablet, housed in a rugged, waterproof case. The case utilizes a back-mounted plate to mount the receiver to the tablet's case in order to enhance mobility.

Specifications:

Battery Life	10 Hours (Continuous PhysioDetect Use)
Charging Port	Apple Lightning Port
Waterproof	With DSI Case

Restrictions:

Certain iOS features have been disabled (e.g. Camera) on the PhysioDetect tablet. The customized iOS blueprint is optimized to enhance the performance of PhysioDetect. Please contact your DSI representative or DSI Technical Support if this is a concern. Please see the **Technical Support** section for contact information.

RECEIVER

PhysioDetect communicates with the PhysioTel Digital system using a receiver mounted on the back of the tablet case. The receiver communicates with the tablet through Bluetooth communication that is established within the PhysioDetect application.

The receiver can be turned on by pressing the on/off button that is in the middle of the above the DSI brand logo.

Specifications:

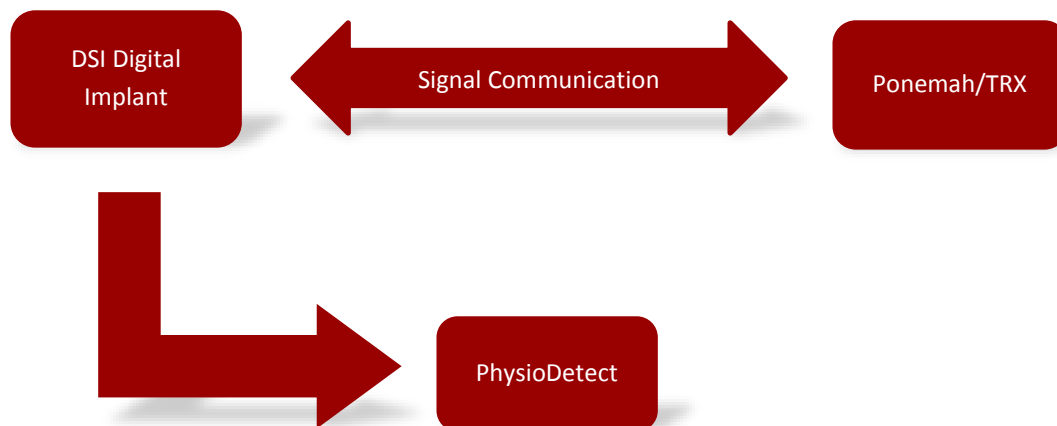
Battery Life	10 Days (Continuous use)
Charging Port	USB-C
Waterproof	No

Cleaning recommendations:

- The PhysioDetect receiver is not water-resistant and should not be directly exposed to water. Direct exposure to water may damage the electronics of the receiver, making it unusable, and may void the warranty.
- DSI only recommends surface decontamination using disinfectant wipes. Any other decontamination process may damage your receivers and could potentially void its warranty.
- The PhysioDetect tablet case is waterproof when all access ports are closed and may be subjected to more liquid cleaning solvent exposure.

Additional questions about cleaning the equipment can be found on the [DSI knowledge base](#) or by contacting **Technical Support**.

COMMUNICATION STRUCTURE

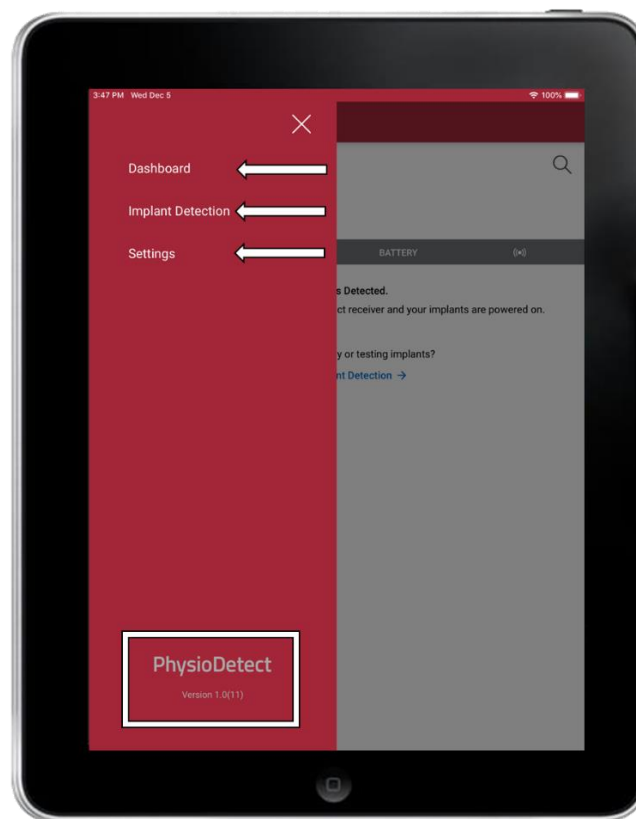


The above picture depicts the communication pathway between the PhysioTel Digital implants and a Ponemah acquisition system. This is a two-way communication pathway. The role of PhysioDetect is to passively listen for the same signal that the Digital implants are sending to the TRX and display pertinent information about the implants broadcasting within range of PhysioDetect.

PHYSIODETECT IOS APPLICATION

This section will outline how to use PhysioDetect to perform the following tasks:

1. Connect the receiver.
2. Detect PhysioTel Digital implants.
3. Monitor implants using the Dashboard.




CONNECTING A RECEIVER

PhysioDetect will ship with the receiver already paired with the tablet. This section serves as a guide if receiver gets disconnected for any reason.

Prior to connecting the receiver, ensure the tablet's Bluetooth is enabled.

To connect a receiver to the application:

1. Turn the receiver on by pressing the on/off button located in the middle of the receiver. A blue light will turn on when the device is on.

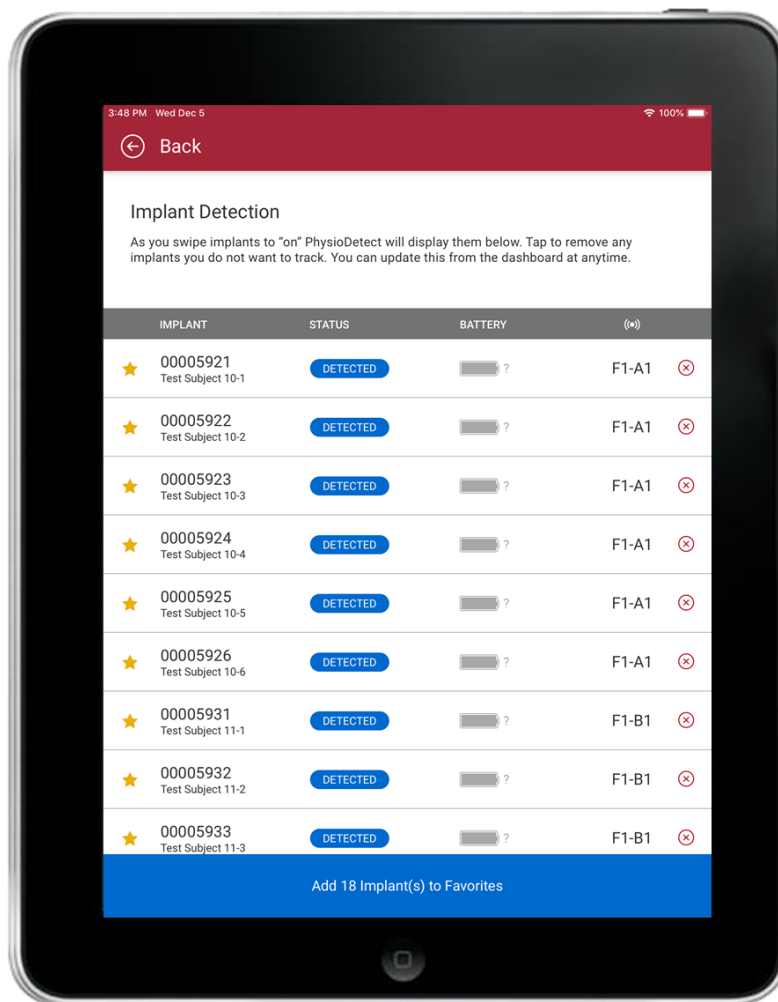
- 
2. Tap the **Navigation** button on the upper left-hand side of the screen and select **Settings**.
 3. Tap the **Connect Receiver** button.
 4. A new screen will load with a list of PhysioDetect Receivers detected by the tablet. Select the receiver with serial number desired to be connected to the tablet.

Note: The receiver serial number can be found on the sticker located next to the power port for the PhysioDetect Receiver.

Now that a receiver is connected to the tablet, implants may be turned on and added to the PhysioDetect Dashboard.

IMPLANT DETECTION

PhysioDetect may be used to verify implants are on after the magnet swipe and determine useful information needed during the Ponemah software configuration process. Once implants have been detected, they may be monitored in the Dashboard.



To detect PhysioTel Digital Implants:

1. Ensure the receiver is turned on and selected through the Settings menu.
2. Bring the PhysioDetect tablet and receiver within 3 to 5 meters of the implant(s) you want to detect.
3. Turn on the Digital Implant by briefly holding a magnet near the device.
4. Repeat as necessary for the number of implants in use.
 - a. If incomplete implant information is received, a message will pop up, there are two possible outcomes when the User attempts to dismiss the pop-up:
 - i. Window disappears: follow instructions and re-swipe implant twice, off and then on. When complete implant information is received successfully and completely, the pop-up message will not display.
 - ii. Window cannot be dismissed: the implant battery may be experiencing passivation. Passivation is a useful battery property that extends the lifetime of the implant. Magnet swipes will be ineffective during passivation, please wait 10 minutes and attempt to dismiss window. Repeat as necessary until window disappears, confirming implant

activation.

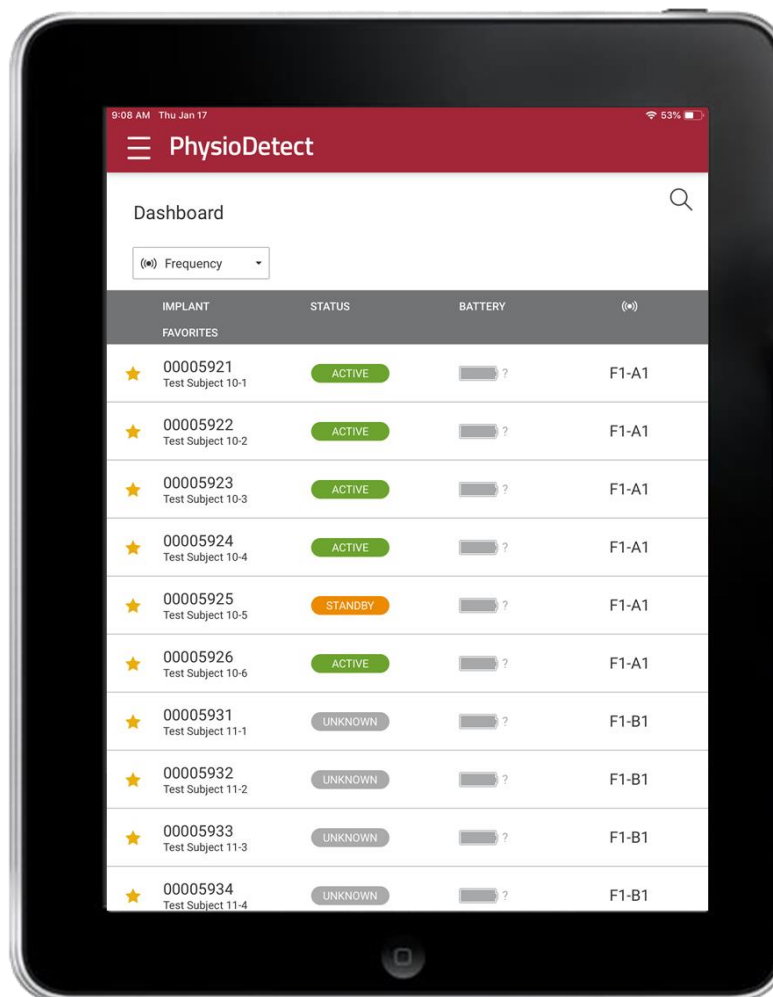
Please see the following [Article](#) to learn more about battery passivation.

5. The implant information should populate the Implant Detection page. Once all the implants have been added, select the **Add Implant(s) to Favorites** button on the bottom of the screen.
6. The Dashboard page will appear with the implants listed.

USING THE DASHBOARD

The main page for the application is the Dashboard. This is automatically the first page displayed when the PhysioDetect application is launched.

PhysioDetect Dashboard:



If using PhysioDetect for the first time, users can follow the link titled *Begin Implant Detection*. After clicking on the link, the application will navigate to the *Implant Detection* page (as depicted previously) to begin the process of adding implants to the application. Once implant detection is complete, and desired implants are saved as favorites, favorited implants will initially become visible on the Dashboard.

Note, the dashboard will display both favorite and other implants within its 3-5-meter range. Other implants may include implants associated with the same PhysioTel Digital system or neighboring systems. Favorites allow the User to manually manage implants of interest. Also, the user-defined Implant Name which is designated in Ponemah is saved when implants are added to Favorites in the Implant Detection page after the implants have been added to an experiment.

For the implants that the device can detect, this page will display the following information organized into columns:

Implant The serial number for the implant.

Status The status of the device.

- The status of the device refers to if the device whether the device is associated with a Ponemah recording system. The different colors associated with each status are included below:

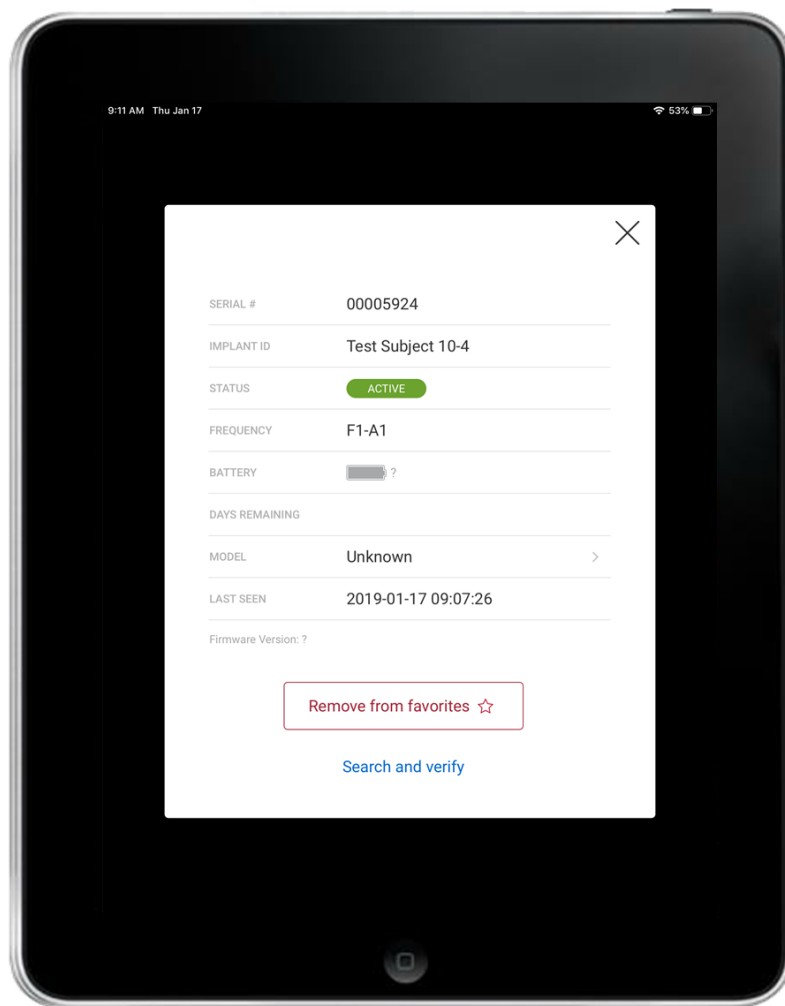
STANDBY

ACTIVE

UNKNOWN

- The green “Active” status indicates that the implant has been synced with a Ponemah system and is actively sampling data.
- The orange “Standby status indicates that the implant has been synced with a Ponemah system but is not currently sampling data.
- The grey Unknown status indicates that the implant is not currently synced with a Ponemah system. Unknown may also display if PhysioDetect is out of range of the implant for more than two scanning cycles. Scanning cycle is defined by when PhysioDetect scans through all designated frequencies one time.

In order gain specific information about that implant, tap on the implant row to pull up the implant menu. This will appear as shown:



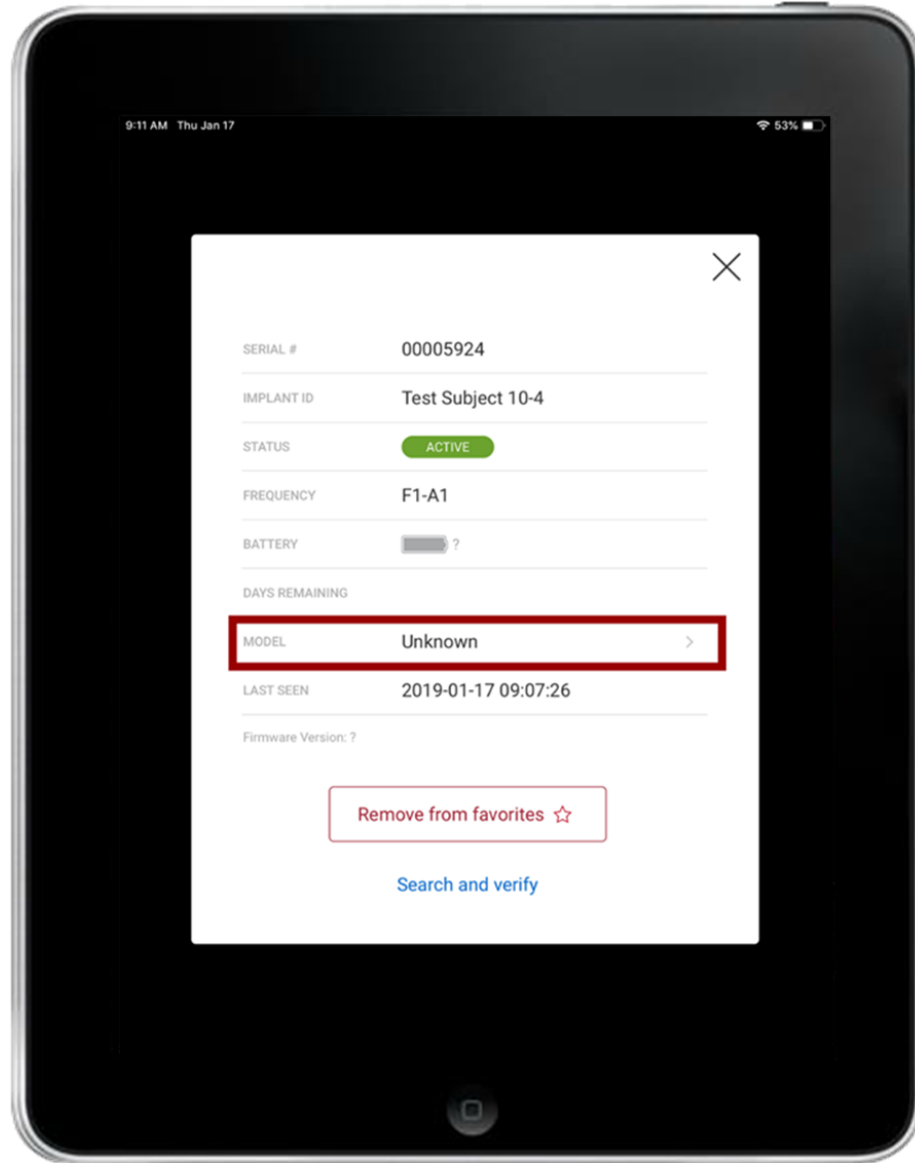
Battery

Implant Battery Life. The battery status will display a percentage next to the battery icon and the days remaining for that implant will be displayed below this information.

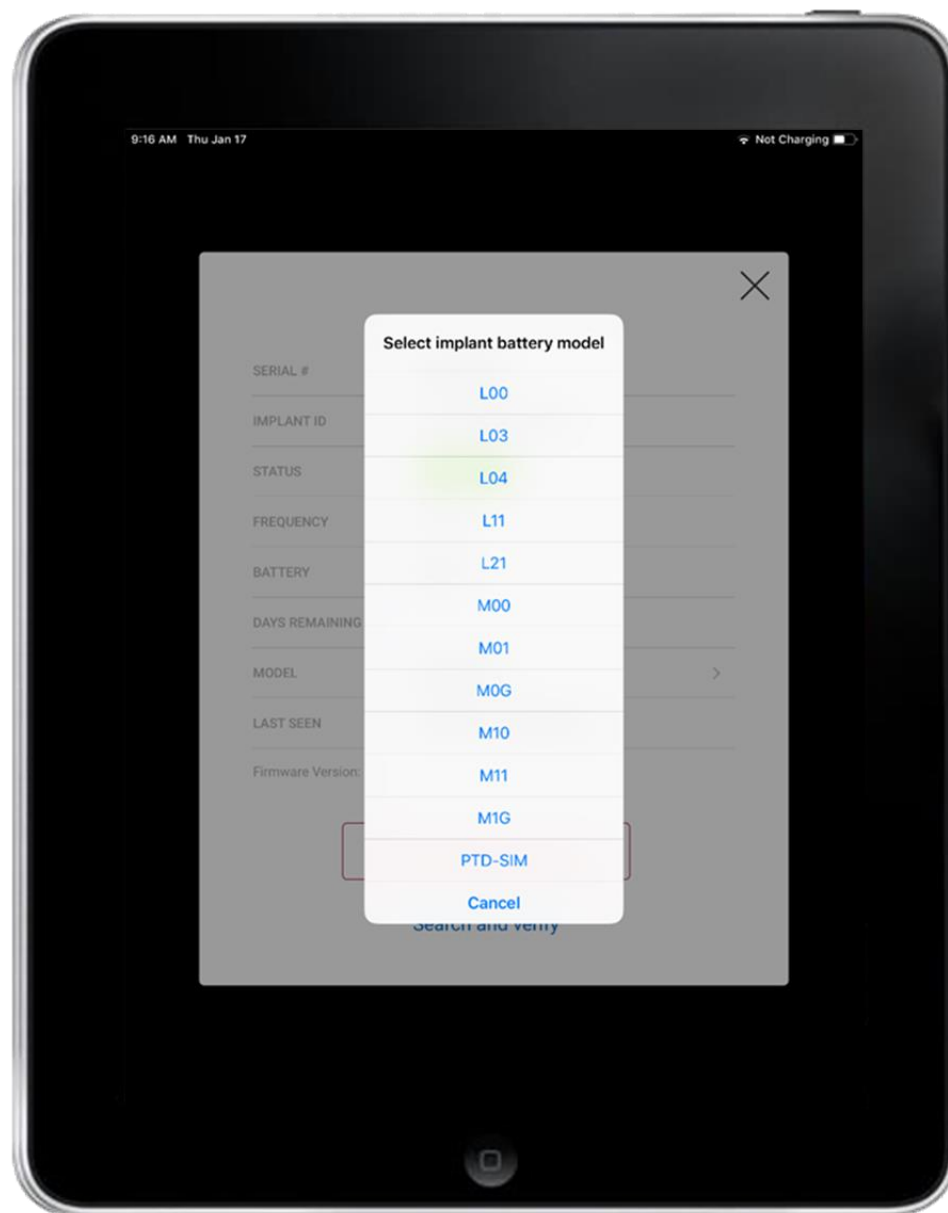
Note: Battery information will only be displayed during an active data collection. The correct Implant Model must also be selected for the Implant within the PhysioDetect App.

To select Implant Model:

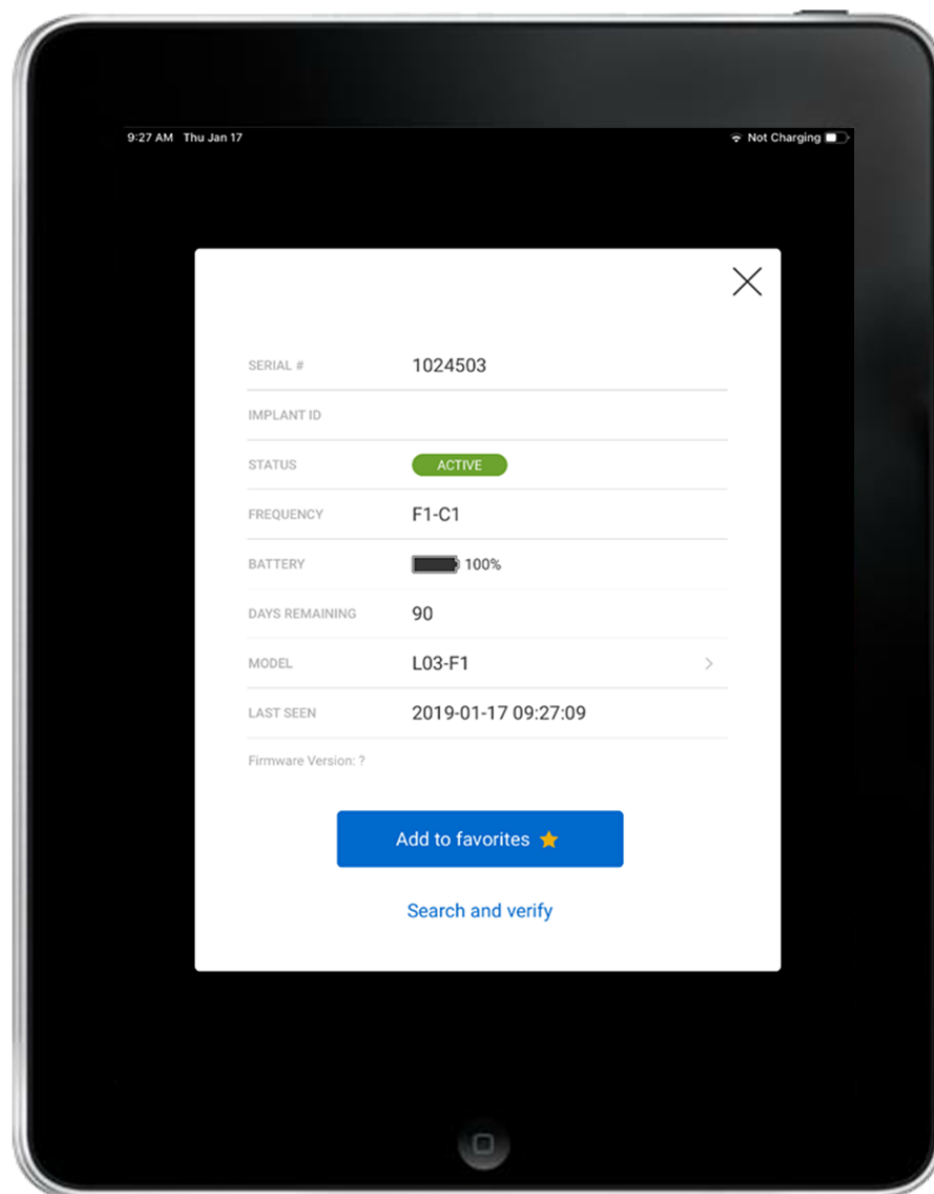
1. Tap an Implant from the Dashboard.
2. Tap the **Unknown** selection associated with *Model*.



3. Select the correct model from the implant from the list presented.



4. The battery information can be displayed as shown:



5. Close the Implant Details page using the **X** in the upper right-hand corner.

Frequency The frequency that the device is currently transmitting on.

1. The Implant ID

- a. A User defined Implant Name can be associated with a given implant in the Ponemah hardware configuration menu. This name will become visible after the implants have been added to an experiment and assigned an Implant Name.

- b. **Note:** This information will only be available if the implant is saved as a favorite from the implant detection page.

ORGANIZING THE DASHBOARD

By default, the Dashboard lists implants in numerical order. However, users can Favorite implants to separate implants into a Favorites and Other Devices Category.

Favoriting implants may be performed during the Implant Detection Stage or directly from the Dashboard.

To favorite an implant during Implant Detection:

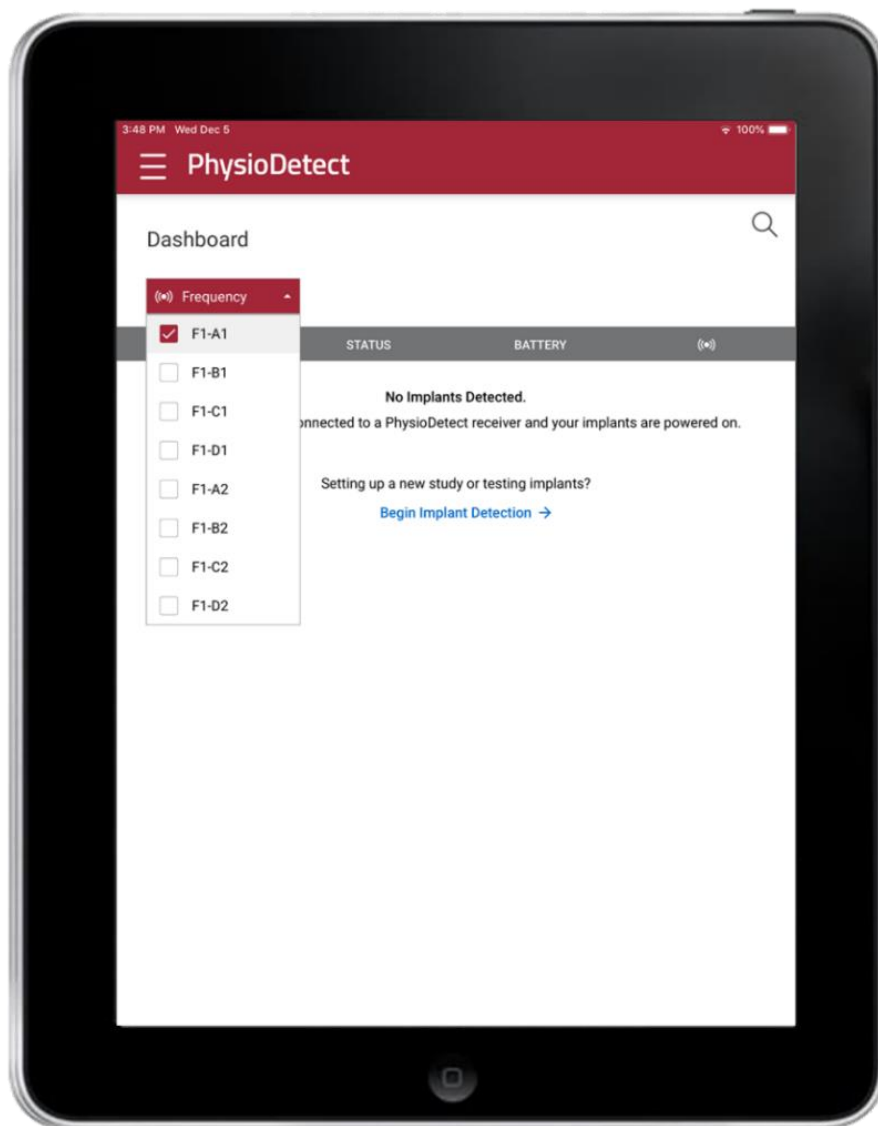
1. Tap the **Gold Star** associated with the implant serial number.
 - a. Solid Gold Star (default): Favorited
 - b. Gold Star Outline: Unfavorited
2. Tap **Add Implants to Favorites** button.

To favorite an implant from the Dashboard:

1. Tap the implant from the Dashboard.
2. Tap **Add to favorites** button.
3. Tap the **X** button in the upper right-hand corner of the page to return to the Dashboard.

SCANNING FREQUENCIES


The frequency with which the device is scanning can be changed through the drop-down menu in the upper left-hand corner of the screen. Once the frequency menu has been opened, different frequencies can be toggled on or off depending on which frequencies need to be scanned.



SCAN INTERVAL

The Scan Interval adjusts the length of time with which the receiver scans over the frequency spectrum. The time it takes for the system to scan for implants on the Dashboard is determined by the CLC firmware that is being used. A CLC using any firmware version older than 1.30.80 may take up to 45 seconds to show implants on a given frequency. A CLC that utilizes firmware version 1.30.80 or newer will only take 15 seconds to display the implant devices.

Check the [Software and Firmware Updates](#) section of the [DSI website](#) for the most current CLC firmware version available.



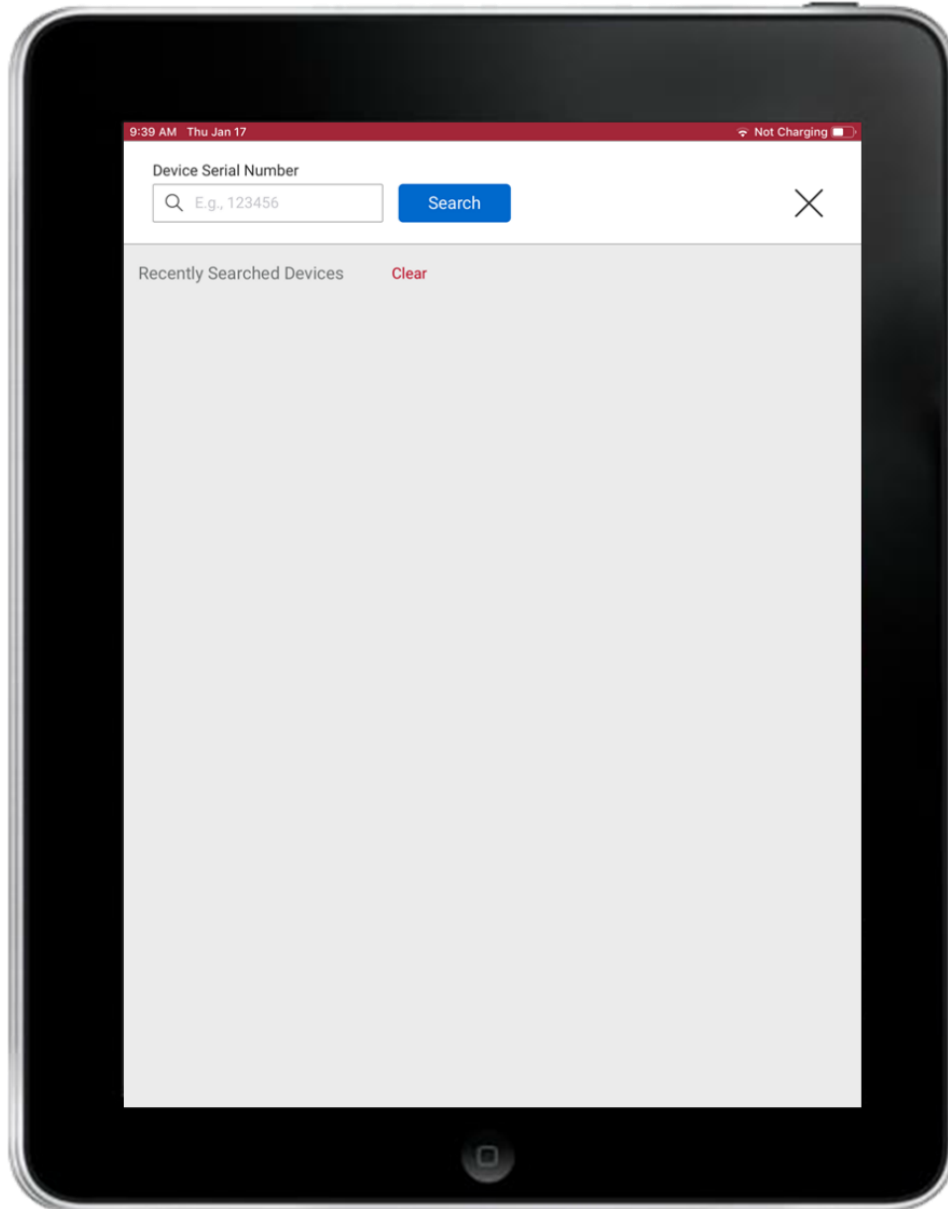
By default, PhysioDetect Scan Interval is defined to 45 seconds. If using CLC firmware 1.30.80 or newer, the Scan Interval may be updated to 15 seconds.

To update the Scan Interval:

1. Tap the **Navigation** button.
2. Tap **Settings**.
3. Tap **15** under the *Scan Interval (Seconds)* header.

SEARCH AND VERIFY

The PhysioDetect system has the capability to search for specific implant devices based on the serial number information for that specific device. Please use this feature when you fail to detect implants in the dashboard. This feature allows for a comprehensive search without having to adjust search filter settings. This mode can be entered by tapping on the magnifying glass in the upper right-hand corner of the application. This opens a new menu as shown:



Once the implant number in question has been identified, it can be typed into the search bar and then click the blue search button to the right. The PhysioDetect system will then cycle through each frequency to look for that implant information associated with that specific serial number. If the implant is found, the information will be displayed on the screen. Additionally, PhysioDetect will store a list of serial numbers that have been previously searched for by the system. This will be displayed when you navigate to the Search and Verify menu. Note, PhysioDetect must be within the 3-5-meter range of the implant to hear implant confirmation.

APPENDIX

TERMS AND CONDITIONS

Subscription Services:

DSI may supply supplemental hardware to support the use of subscription services. By using any DSI subscription service, the Purchaser agrees to use any supplemental hardware supplied by DSI only for its Intended Use, within the agreed upon subscription period. The Purchaser assumes liability for damage to any supplemental hardware caused by the Purchaser's use and will be responsible for any resulting fees.

DEMO MODE

Demo Mode loads a set of pre-recorded implants to simulate proper function of the PhysioDetect device with a PhysioTel Digital system. If devices that you do not recognize are listed and are not in the process of using the system, please ensure that Demo Mode is turned off under the Settings menu. If you cannot identify a new PhysioDetect receiver you are trying to pair in the settings menu, double-check demo mode is not accidentally activated.

REGULATIONS AND COMPLIANCE

1) FCC Interference Statement (Part 15.105 (b))

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

2) FCC Part 15 Clause 15.21:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

3) FCC Part 15.19(a):

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4) ISED RSS-Gen Notice:

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

5) ISED Canada ICES-003 Compliance Label

CAN ICES-3 (B)/NMB-3(B)

TECHNICAL SUPPORT

DSI™ is available to help you with your questions and concerns. Should you hit a road block or need some additional training, please feel free to contact us. We are happy to help!

DSI TECHNICAL SUPPORT KNOWLEDGE BASE

<https://support.datasci.com>

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