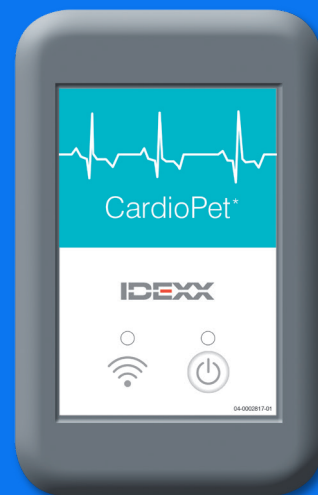


IDEXX CardioPet ECG

+ + + + + +




IDEXX

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Getting started

Navigating the CardioPet ECG Device



Wireless communication light

Power light
Power button

Front of the device



Battery compartment

Back of the device

(The label on your device may look different from the one shown.)



Cable port

Top of the device (without cables)



Top of the device (with cables)

Providing power to the CardioPet ECG Device

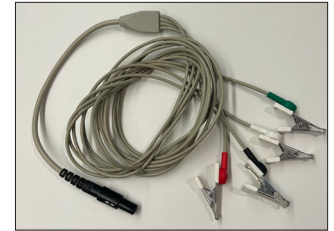
The CardioPet™ ECG Device uses two AA alkaline (nonrechargeable) batteries that should be inserted per the polarity indicated on the inside of the battery compartment (on the back of the device). **NEVER use rechargeable or lithium batteries with the CardioPet ECG Device as they may cause a fire hazard.** IDEXX recommends that you remove the batteries from the device if it will not be used for an extended period.

You can monitor the battery status on the CardioPet software menu bar:

- ✦ When the battery life is adequate, it will appear with a green check mark 🟢.
- ✦ When the battery should be changed, it will appear with a yellow caution symbol ⚠️ and the power light will blink on 05 models. Dispose of old batteries per your local disposal regulations.


Connecting/disconnecting the cables to the CardioPet ECG Device

To connect the cables: Attach a clip to each of the four cables. Then, plug the single end of the cable into the CardioPet ECG Device, aligning the arrow with the triangle on the back of the device.



To disconnect the cables: IDEXX recommends that you keep the cables plugged into the device to prevent potential damage to the prongs that could result in a poor connection and ECG diagnostic quality. If it's necessary to remove the cables, pull the **outer** cylinder of the connector to release the lock. Cables should be stored gently coiled (avoid sharp bends) to prevent damage to the internal wires that could cause poor ECG diagnostic quality.

Turning the CardioPet ECG Device on/off

Press the power button  on the front of the device to turn the device on/off (when on, the power light above the button will illuminate). The device will turn off automatically after 5 minutes of inactivity.

Note: If you're using model 05, the power light will illuminate for 1–2 seconds once the device is powered on.


Installing the CardioPet software/app


The CardioPet ECG Device works with the CardioPet™ software (for a Windows™ personal computer) and/or the CardioPet™ app (for compatible iOS™ and Android™ devices). Follow the applicable instructions in this section to install the software and/or app on your computer/device. To ensure your computer/device is compatible with the software/app, please [review the applicable system requirements](#).

Note: Some computers/devices require administrative rights for downloading software. If you receive an error when downloading the CardioPet software/app, contact your practice's system administrator or IT person for assistance.

To install the CardioPet software on a Windows personal computer

1. Download the software at idexx.com/telemedresources.
2. When asked to specify your clinic ID, enter the Account Number from the upper-left corner of your IDEXX billing statements.

		BILLING STATEMENT	
Account Number: 123456		View/Pay Online:	http://idexx.billtrust.com
Billing Address IDEXX ANIMAL HOSPITAL WESTBROOK ME 04092		Enrollment token:	ABC DEF GHI
This Statement Covers Activity From July 1st - July 31st 2016			
Previous Balance:		4,830.96	
Payments, Credits, & Adjustments:		-2,704.52	
Purchases:		1,999.55	
Balance Due on 08/25/2016:		4,125.99	

3. In the taskbar in the lower-right corner of the Windows screen, click the up arrow to display hidden icons and visually confirm there is a Bluetooth™ icon . If it is not, enter **Device Manager** in the Windows search bar (on the lower-left corner of the screen) and visually confirm that **Bluetooth** or **Bluetooth Radios** is listed. If it isn't, follow the instructions in the package you received from IDEXX to install the Bluetooth adapter and appropriate ASUS™ drivers before continuing.

Note: Performing this step incorrectly can impact the CardioPet software's ability to receive ECG information from the device. If, with use, you notice a problem where ECG tracings are not visible in the software:

- + Check that the wireless communication light is illuminated on the CardioPet ECG Device. If it is not, try restarting the device.
- + In Bluetooth™ settings, remove the CardioPet ECG Device and then add it again. The pairing PIN/code is 3001.
- + Make sure the correct serial number is in the CardioPet software (**Settings > ECG Options**).
- + Restart the computer.
- + If necessary, uninstall and reinstall the CardioPet software.

Note: Some computers require administrative rights for downloading software. If you receive an error when downloading the CardioPet software, contact your system administrator or IT person for assistance.

To install the CardioPet app on an Android device

1. On the tablet, go to the device settings.
2. Verify that Wi-Fi is enabled and connected.
3. Update the screen timeout to **30 minutes** (or your preferred time, but more than 1 minute).
4. Confirm that the date, time, and time zone are set accurately for your location.
5. Verify that the Bluetooth connection is turned on.
6. Tap the **Google™ Play** icon.
7. Search for and install **IDEXX CardioPet**.
8. Review and agree to the Terms of Service and Privacy Policy.
9. Open the CardioPet app when the installation is complete.

To install the CardioPet app on an iOS device

1. Tap **Settings**.
2. Verify that Wi-Fi is enabled and connected.
3. Ensure the CardioPet ECG Device is turned on.
4. Tap Bluetooth and ensure it is set to **On**.
5. Once the CardioPet ECG Device name is listed in the My Devices list (it will start with the letters “CP”), press and hold the power button on the CardioPet ECG Device for 5 seconds to turn it off.
6. Tap **General** and then tap **Software Update**. If there is a software update available, install it now.
7. Under General, tap **Date & Time** and confirm the date, time, and time zone are correct for your location.
8. In the App Store, search for and download **IDEXX CardioPet**.
9. Review and agree to the Terms of Service and Privacy Policy.

Configuring the CardioPet software/app settings

Once the CardioPet software/app is installed, follow the applicable instructions below to configure the software/app settings.

To configure the settings in the CardioPet software (for a Windows personal computer)

1. Turn on the CardioPet ECG Device by pressing its power button.
2. Open the CardioPet software and select **Settings** in the upper-left corner of the screen.
3. Select **Telemedicine** and enter the VetMedStat™ User Name (three letters followed by four numbers) and the case-sensitive VetMedStat Password fields using your practice’s VetMedStat account information.
4. Confirm the VetMedStat URL: **<https://api.vetmedstat.com/vmsintegrations/vmstms.asmx>**
5. In the CardioPet software Settings, select **Bluetooth** and select the device name that starts with “CP” and matches the device’s serial number (you may need to refresh your screen if a device is not listed).
6. Enter these settings:
 - + **Recording Time:** Select the recording duration you prefer (30 or 60 seconds).
 - + **Weight Unit:** Select the weight units you prefer (Kg or Lb).
 - + **Quality Indicator Species Selection:** Select **Always Ask Species** unless all ECGs will be performed on just one of the listed species. This feature will prompt a request for species before each ECG, which allows CardioPet to record the best possible ECG.

To configure the settings in the CardioPet app (for Android or iOS)

1. Turn on the CardioPet ECG Device.
2. Open the CardioPet app and tap **Settings**.
3. Enter the following information:
 - + Under Telemedicine, enter your VetMedStat (VMS) User Name, Password, URL (the URL should be **api.vetmedstat.com**).
 - + For Android only: Under Bluetooth, select the device name that starts with "CP" (you may need to refresh your screen), provide permission for Bluetooth to pair with the device (if prompted), and enter the Bluetooth Pairing Request PIN (3001), if prompted.
 - + Under General, select the recording duration you prefer (30 or 60 seconds), select the weight units you prefer (Kg or Lb), and for Quality Indicator Species Selection, select **Always Ask Species** unless all ECGs will be performed on just one of the listed species (this feature will prompt a request for species before each ECG, which allows CardioPet to record the best possible ECG).
4. Tap **Close** at the top left side to exit Settings.

Entering the ECG viewer settings in the CardioPet software/app

Once you have installed the CardioPet software/app and configured its settings, you can enter the ECG settings. These settings apply to how an ECG is viewed onscreen and do not impact the saved ECG file.

1. Open the CardioPet software or CardioPet app.
2. If you're using CardioPet software, click **ECG Tools** on the upper-left corner of the screen.
OR
If you're using the CardioPet app, tap **Settings** on the lower-left corner of the CardioPet app.
3. Set the following items to your viewing preferences:
 - + **Display Type:** Select from Single Lead, Einthoven (3 leads), or Goldberger (6 leads).
 - + **Paper Speed:** Scroll to see all speed options and select the desired setting (50 mm/sec is recommended).
 - + **Gain:** Select the desired setting (10 mm/mV is recommended).
 - + **Show Heart Rate:** When this feature is turned on, the CardioPet app shows a calculation of the patient's heart rate in the top left corner of the app.
 - + **Play Heartbeat:** When this feature is turned on, the CardioPet app makes an audible beep to the rhythm of the heart rate.
 - + **Grid:** Choose between fine, medium, coarse, or no gridlines behind the ECG tracing in the app.
4. If you're using CardioPet software, click the back arrow at the top-left side of the screen..
OR
If you're using the CardioPet app, tap **Close** in the upper-left corner of the CardioPet app.

Integrating the CardioPet software/app with IDEXX Web PACS or IDEXX-PACS

Integrating your CardioPet application with the IDEXX Web PACS™ Software and/or the IDEXX-PACS™ Imaging Software lets you store ECGs and other digital images together in the same patient record. You can then submit the images to IDEXX Telemedicine Consultants (vetmedstat.com) as a single case.

Integration requirements:

- + A CardioPet application installed on an eligible Windows computer, Android mobile device, or Apple™ iPad™ tablet
- + IDEXX-PACS software version 4.2.1 or later and/or an IDEXX Web PACS subscription

Contact IDEXX Telemedicine Consultants at 1-800-726-1212 for additional information and/or to schedule a remote session with a representative who will help you set up the integration.

Using the CardioPet ECG Device and software/app

Preparing the patient and attaching clips

1. Place the animal on a padded surface in right-lateral recumbency.
Note: The patient can also stand upright or be in sternal position; however, be sure to note these positions in the patient history when you submit the case.
2. Liberally apply alcohol or ultrasound gel to each limb, 1"–2" below the elbows and knees (where the clips will be attached).
3. Attach the CardioPet™ Comfort Clips, being sure to part the fur for good skin contact, as follows (see image A for a typical ECG and see image B for a chest lead ECG):

+ **Black:** Position varies depending on the type of ECG being recorded:

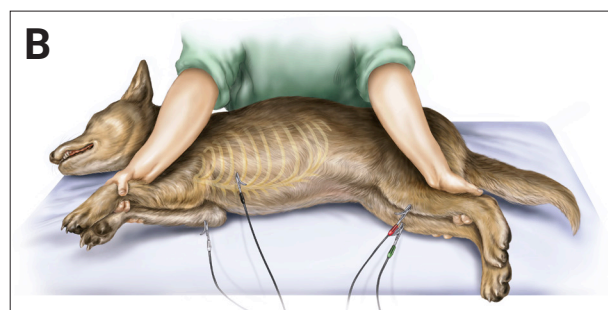
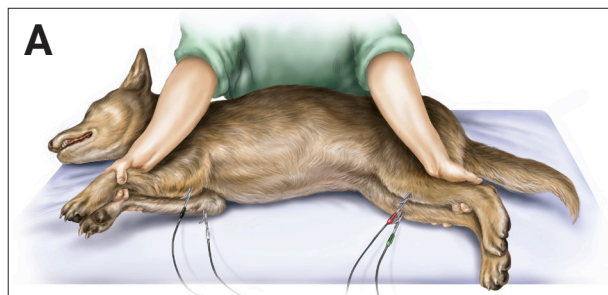
- Typical ECG: Left front leg
- Chest lead ECG: Left side of chest between the fourth and fifth ribs (wherever the heartbeat is strongest with touch or auscultation); lead I will appear as the chest lead.

Note: Add "Chest lead included" in the patient history when you submit the case at vetmedstat.com.

+ **Red:** Left rear leg

+ **White:** Right front leg

+ **Green:** Right rear leg



IMPORTANT: Make sure that the patient's limbs, the cables, and the clips do not touch one another or touch metal.

Recording an ECG and submitting it to IDEXX Telemedicine Consultants

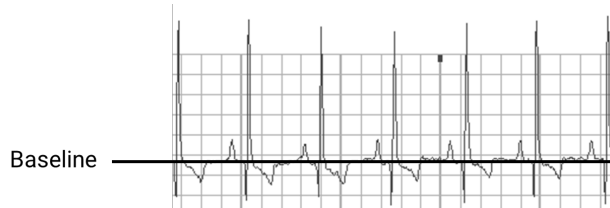
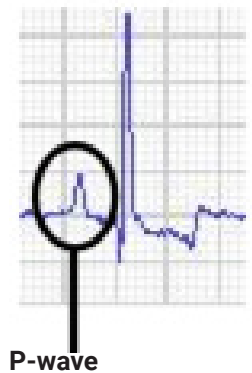
Note: If you want to submit a case from within IDEXX Web PACS™ or IDEXX-PACS™ software, refer to your IDEXX Web PACS or IDEXX-PACS online help for instructions on submitting cases to IDEXX Telemedicine Consultants (vetmedstat.com). You can include radiographs, echocardiograms, and ECGs in a single submission.

IMPORTANT: For cardiology services, send only cardiac-specific images. If you include images for other areas of study, you must also select an applicable Radiology or Dental service.

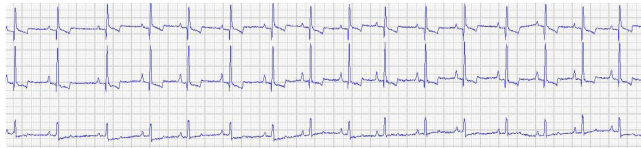
1. Prepare the patient and attach the clips using the steps noted above.
2. Open the CardioPet™ software or CardioPet™ app.
3. Turn on the CardioPet™ ECG device. When the wireless communication light on the front of the device illuminates, the ECG starts streaming automatically to the software/app.
4. If live streaming doesn't start automatically, click **New ECG**. This activates wireless communication; the light on the device will illuminate.
Tip: On CardioPet™ ECG Device models 02 and newer, you can also lightly depress the power button on the CardioPet Device to start recording.
5. If prompted, select the patient species: **Canine**, **Feline**, or **Other**.

6. Confirm the tracings are diagnostic:

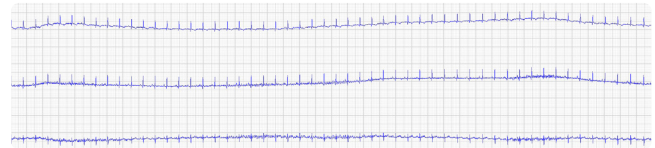
- + The P-waves are visible and distinct from motion artifact in lead II. The P-wave may be very small or invisible on leads I and III, especially in feline ECGs.
- + The P-wave (if visible):
 - Is positive (points upward) in leads I, II, and III.
 - Is negative (points downward) in lead AVR.
 - May be either positive or negative in leads AVL and AVF.
- + The ECG baseline is generally level.




Examples of diagnostic ECGs:



Diagnostic canine ECG



Diagnostic feline ECG

7. Click **Start Recording** . A timer appears in the bottom right corner of the window. If the ECG quality indicator tool detects an issue with the ECG quality or lead placement, the quality indicator changes the color of any potentially affected leads to yellow and provides additional troubleshooting information (if you continue to receive the error after completing the troubleshooting steps, close the alert and continue recording).

Note: Recording stops automatically after 30 or 60 seconds, depending on the setting you chose [when you configured the settings for the software/app](#). The ECG must be at least 20 seconds long.

Important: The Record button will change to the next action in the acquisition process, for example: Stop, Select Patient & Save, Start a Case.

8. Click **Select Patient & Save**.
9. The remaining steps vary depending on if you're using CardioPet software/app with(out) IDEXX-PACS or IDEXX Web PACS integration:

If you're using the CardioPet software/app with IDEXX-PACS/IDEXX Web PACS integration:

- a. Choose an existing patient, or add a new patient using the **Add** icon and then click **Save** to confirm. The ECG will be transferred to the patient's card in the PACS software.
- b. Click **Start a Consult** within IDEXX-PACS or IDEXX Web PACS to complete the case submission.

If you're using the CardioPet software/app without IDEXX-PACS/IDEXX Web PACS integration:

- a. Choose an existing patient, or add a new patient using the **Add** icon and then click **Save** to confirm.
- b. Click **Start a Case** and then select **Finish Now** or **Finish Later**.
- c. Complete the case submission at vetmedstat.com.

Saving an ECG as a PDF in the CardioPet software/app

The following steps are applicable for Windows™ PCs only. Mobile iOS™ and Android™ customers who require an ECG as a PDF can contact IDEXX Support to request an emailed ECG PDF (IDEXX Support will download the requested ECG from VMS Admin, import it into local ECG software, export it as a PDF, and email it to the customer).

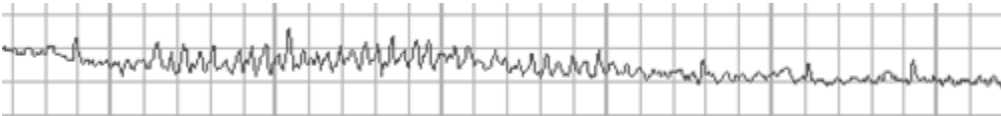
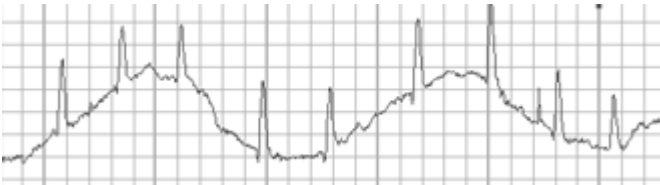
1. Open the desired ECG.
2. If you would like to add a bookmark to an area of interest, click the center of the area of interest.
Note: You can right-click the ECG to remove all bookmarks.
3. Click **ECG Tools** in the CardioPet app menu bar.
4. Click **Save to PDF**.
5. In the new window, select the location where you would like to save the ECG PDF and then select **Select Folder**. The ECG PDF is saved in that location.

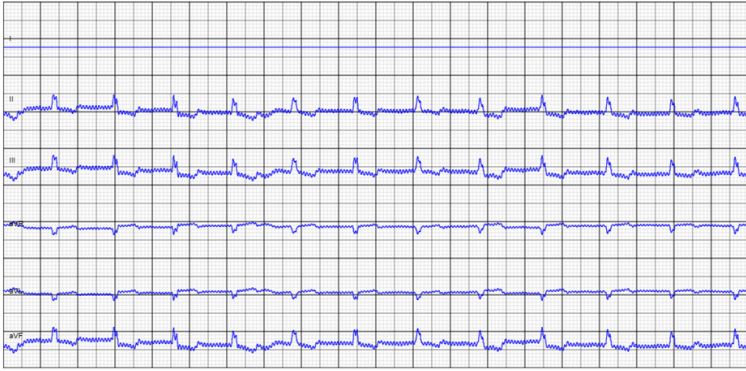
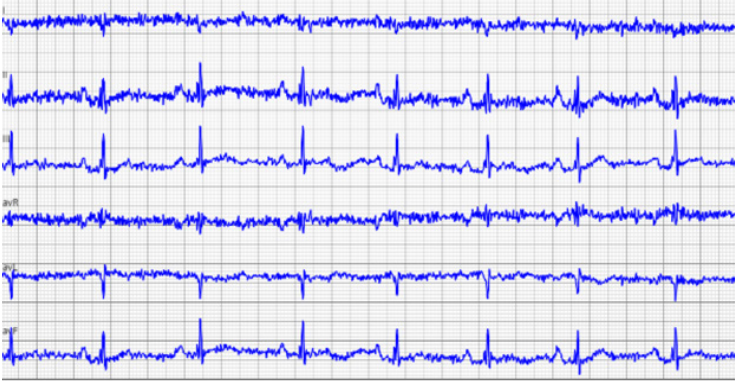
Cleaning the CardioPet ECG Device

Clean the exterior of the device using a paper towel moistened with isopropyl alcohol.

Troubleshooting

ECGs

Problem	Solution/description
Indistinct P-waves and movement artifact	<p>P-waves may be “washed out” by artifacts caused by panting, shaking, and vocalizing. To reduce movement artifact:</p> <ul style="list-style-type: none">+ Move clips below the knees and elbows.+ Distract the patient by tapping gently on the nose or offering a treat out of a closed hand.+ Apply gentle pressure to the chest and/or legs.+ Reposition the patient (if patient is standing, place in right-lateral position, or the reverse).+ Record a chest lead to distinguish P-waves from movement artifacts.
	
	Feline ECG with indistinct P-waves caused by purring
	
	Canine ECG with respiratory (panting) artifact

Flat lines or indistinct complexes	<p>Make sure clips have sufficient skin contact and alcohol/ultrasound gel saturation for conduction.</p> 
Blurry lines	<p>Make sure clips are secure and have sufficient alcohol/ultrasound gel saturation for conduction.</p> 
Small or absent P-waves	<p>Record a chest lead if P-waves are small, inconsistent, or absent. See Preparing the patient and attaching clips for more information.</p>
Inverted P-waves	<p>If the P-wave is not positive in leads I, II, and III, or negative in lead aVR, ensure the leads are correctly plugged into the CardioPet™ ECG Device and the clips are attached to the correct legs. See Connecting/disconnecting the cables and Preparing the patient and attaching clips for more information.</p>
Vertical red bar in the ECG tracing	<p>A vertical red bar in the ECG tracing indicates a data integrity error. For example, the patient may be out of the device's transmission range. Try moving the device closer. Remove any obstacles between the device and the software.</p>
Crowded or overlapping complexes	<p>Gain may be too high or feed too slow. Try a gain of 10 mm/mV and a feed of 50 mm/s.</p>
ECG tracing is not visible in the software/app	<p>Windows PC:</p> <ul style="list-style-type: none"> + Check that the wireless communication light is illuminated on the CardioPet ECG Device. If it is not, try restarting the device. + In Bluetooth™ settings, remove the CardioPet ECG Device and then add it again. The pairing PIN/code is 3001. + Make sure the correct serial number is in the CardioPet software (Settings > ECG Options). + Restart the computer. + If necessary, uninstall and reinstall the CardioPet software. <p>Note: Some computers require administrative rights for downloading software. If you receive an error when downloading the CardioPet software, contact your system administrator or IT person for assistance.</p> <p>Android or iOS device:</p> <p>Try enabling the connection to the CardioPet ECG Device again.</p>

VetMedStat

If the case was uploaded from a Windows personal computer: In the CardioPet software, select **Settings > Telemedicine**. Under VetMedStat Account, verify that the VetMedStat™ user name and password are correct. Then, verify that your computer has an internet connection.

If the case was uploaded from an Android or an iOS device: Hold down the Menu button and then tap **Settings**. Verify that the VetMedStat account number and password are correct and that the domain is **api.vetmedstat.com**. Then, verify that the device is connected to a Wi-Fi network with internet access.

Appendix

CardioPet software/app minimum system requirements

CardioPet software for a Windows personal computer

A Windows™ personal computer with:

- + Device ports: USB 2.0 or later
- + Operating system: Windows™ 10 or later (32- or 64-bit)
- + RAM: 4 GB
- + Hard drive: 100 GB
- + Internet connection

CardioPet app for an Android mobile device

- + Android™ operating system must be version 7.1 or later.
- + If this is a new Android device, follow the instructions that came with the device to complete its initial setup before proceeding.
- + An internet connection is needed for installing the app, uploading an ECG file from the CardioPet app to vetmedstat.com, and submitting a case directly on vetmedstat.com.
- + A Google™ account is needed to download apps from the Google Play™ store.
- + **IMPORTANT:** Although the CardioPet™ app for Android™ Mobile Device should be compatible with Android-based tablets, we cannot guarantee compatibility with every Android device. Please contact IDEXX Telemedicine Consultants to validate compatibility.

CardioPet app for an iOS device

- + The CardioPet™ ECG Device must be model 04 or later.
- + Your Apple™ iPad™ must have iOS™ 11 or later.
- + An internet connection is needed for installing the app, uploading an ECG file from the CardioPet™ iOS app to vetmedstat.com, and submitting a case directly on vetmedstat.com from the iOS™ device.
- + To download the CardioPet app from the App Store™, an Apple™ ID is required.
- + **IMPORTANT:** Although the CardioPet app should be compatible with iPad devices, we cannot guarantee compatibility with every iOS device. Confirm your iOS device is compatible with the app by viewing the CardioPet app in the App Store and then scrolling to the Information section to check the app's compatibility with your device.

Operating and technical specifications for the CardioPet ECG Device

Unit dimensions	121mm x 76mm x 28mm
Unit weight	139 g (162 g with batteries)
Operating temperature	8°C to 45°C (46°F to 113°F)
Storage temperature	5°C to 45°C (41°F to 113°F)
Operating humidity	80% without condensation
Storage humidity	80% without condensation
Ambient relative humidity	25% to 80% without condensation
Atmospheric pressure	700 hPa to 1070 hPa
Sampling rate	500 Hz each channel

Signal frequency range for the device (resulting frequency range depends on the specific filters implemented in the software)	0.05 Hz to 100 Hz
Filter type	Digital
Channels	2 according to 3 or 6 vectors
Operating range	Approximately 100 m (clear range)
Batteries	Chemistry: Alkaline (zinc-carbon dry cell) Type: AA Rechargeable: No Weight: 23 g

Safety precautions for the CardioPet ECG Device

- + The device does not contain any user-serviceable components. Do not disassemble.
- + Do not use the device during electrical defibrillation to avoid uncontrollable decrease of defibrillation energy and skin burns.
- + Use **only** alkaline batteries. Never use rechargeable batteries or lithium batteries, which may cause excessive high temperatures and fire hazards.
- + Keep the device away from sources of heat or flames.
- + Protect your equipment from damp conditions or wet weather.
- + Do not expose the device to any liquid.
- + The device can be affected by high-frequency communication devices. Do not use mobile communication devices in close proximity to the CardioPet ECG Device.
- + Do not use the device along with high-frequency surgery devices.
- + Remove the batteries if the device will not be used for an extended period of time or replace the batteries the next time you use the device.
- + To clean the device and leads, use a wipe moistened with isopropyl alcohol.
- + If the device is used in a manner other than specified, the protection provided by the device may be impaired.
- + DO NOT use any of the following liquids, abrasives, or aerosol sprays on or near the device, as they may damage the outer case and may adversely affect results:
 - Organic solvents
 - Ammonia-based cleaners
 - Ink markers
 - Sprays containing volatile liquids
 - Insecticides
 - Polish
 - Room freshener

International symbol descriptions

International symbols are often used on packaging to provide a pictorial representation of particular information related to the product (such as expiration date, temperature limitations, batch code, etc.). IDEXX Laboratories has adopted the use of international symbols on our analyzers, product boxes, labels, inserts, and manuals in an effort to provide our users with easy-to-read information.

Symbol	Description
	European conformance
	WEEE Directive 2002/96/EC
	Caution, consult accompanying documents
	ACMA conformance
	U.S. safety compliance
	Manufacturer
	Serial number

IDEXX Telemedicine Consultants contact information

United States/Canada	1-800-726-1212 telemedicinesupport@idexx.com
Australia	61 7 3456 6058
New Zealand	00 61 7 3456 6058
Denmark	43310439
Finland	0972522253
Ireland	015621211
Norway	24055110
Sweden	0851989566
United Kingdom	02037887508

