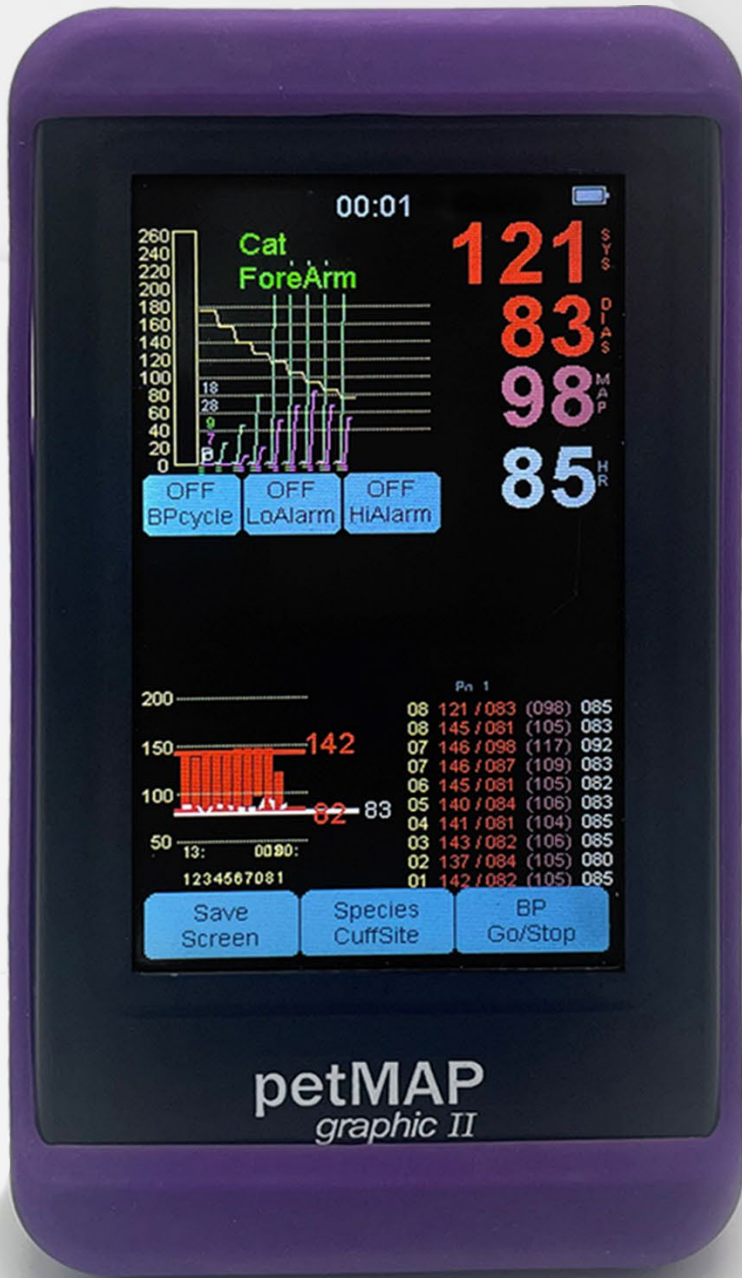


petMAP

graphic II

Operator's Manual



*Portability, versatility
and accuracy like
no other!*



**MADE IN THE
USA**

Developed by:
**RAMSEY
MEDICAL INC**

www.petmap.com

Manufactured,
Distributed and
Serviced by: **Cardio
Command**



petMAP *graphicII (gII)*

<u>MODEL</u>	<u>DESCRIPTION</u>
7300	petMAP <i>gII</i> , Blood Pressure Measurement Device

This manual applies to the above device and its accessories. **Read this manual completely before using this equipment.**

petMAP *gII* is to be operated by qualified personnel only. Before use, familiarize yourself with the device and read this manual, including all warnings and cautions. The user should check that petMAP *gII*, along with its accessories, is functioning both safely and effectively prior to use.

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petMAP *gII* OPERATOR'S MANUAL

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INTRODUCTION

Device Description

petMAP *gII* is a small, lightweight and portable blood pressure measurement device designed for veterinary use. It is capable of measuring blood pressure (systolic, diastolic and mean arterial pressures) and heart rate. The measured values are displayed and trended graphically and numerically on the device. Data trended on the petMAP *gII* can optionally be saved on an SD memory card via the device's integrated SD memory card slot.

A user interacts with petMAP *gII* using its touch screen, just like many smartphones. The user can set alarms for systolic blood pressure and can set a BP cycle time for automatic reminders to start another BP measurement.

Intended Uses

petMAP *gII* is intended to be used on veterinary patients when measuring blood pressure and heart rate are desired. It can be used on a wide variety of veterinary patients; however, it is primarily designed for companion animals. petMAP *gII* can be used on both awake and anesthetized patients; its applications include use for surgical, ICU and trauma monitoring as well as use in the exam room and during procedures (imaging, dentals, etc.).

Features of petMAP *gII*

- **Portability:** petMAP *gII*'s weight and size may make it the most portable and versatile blood pressure (BP) measurement device in veterinary medicine. It is a single device that can be used in the OR, ICU, trauma, dentals, exam room, transport and for mobile practices! And when not in use, it can be in your pocket... ready for action... anywhere, any time.
- **Accuracy:** The *gII* employs petMAP proprietary BP, including dual channel oscillometry, **PPO** (**P**etMAP **P**roprietary **O**ptimizations) and a continuously computed **NSV** (**N**ominal **S**ession **V**alue). petMAP *gII* utilizes the oscillometric method of BP determination which simplifies the measurement of blood pressure over traditional Doppler techniques. petMAP *gII* also provides all of the BP parameters (systolic, diastolic, mean arterial pressure (MAP) and heart rate), enabling accurate diagnosis and management of hypertension and useful monitoring during surgical anesthesia and other procedures.
- **Sensitivity:** petMAP's dual channel oscillometry provides great sensitivity which permits BP measurement even in small cats and dogs, as well as in larger animals, including horses, when set in the non-optimized mode setting. Additionally, for companion animals, **PPO** enhances the accuracy achieved by allowing the user to select the species (dog or cat) and the cuff placement site (forearm, tail or hind foot). **PPO** is unique to petMAP devices and when used, improves the correlation of the readings to direct, intra-arterial pressure measurements.
- **Session BP values:** Like all petMAPs, petMAP *gII* provides another unique and proprietary feature, the BP "Nominal Session Value" or NSV. The NSV is not a straight average of the BP readings; rather, it is a substantially more robust statistical measure of the animal's nominal BP during the BP session since it eliminates high and low outliers and gives more weight to the

session values that are in the middle of the measured BP range. The NSV enhances the veterinarian's ability to accurately diagnose, trend, and manage hypertension in awake animals in the exam room.

- Ease of use: petMAP *gII*'s portability, data presentation options and intuitive user interface (no menus are required for normal use) make it one of the easiest devices to use. The touch screen controls and "no menus" for normal use make in-service a snap, particularly since it functions much like a smart phone or tablet...touch driven and very intuitive. (Please do read this manual however!)

Measuring Vital Signs on Animals / General Information & Helpful Tips for BP Measurement.

Measuring blood pressure in companion animals requires:

1. A cooperative, relaxed animal that is not moving
2. A patient, well trained veterinarian or technician
3. Accurate measuring equipment
4. The right size cuff properly applied to the appropriate limb. The forearm or tail is usually best for cats; the tail for dogs.

Veterinarians who teach BP seminars point out the most important requirements are the skill, training, experience and patience of the person taking BP. Also, a calm animal is essential. petMAP *gII* is specifically designed to allow the user to get good determinations on calm, awake animals. Even so, many animals will require extra time for calming and lots of user patience. If an animal is restless, giving them 8 to 10 minutes to calm down often helps and should restore their BP closer to their usual level. Accurate BP readings, even on a relaxed animal, require the proper cuff size and a "snug-tight" fit. For CritterCuffs, use the "OPTIMUM zone" lines to select the proper size cuff (see CritterCuff™ Information).

For QuickCuffs, ensure the cuff is "snug tight" when the cuff has been squeezed to tighten around the animals' limb (see QuickCuff™ Information)

If you have trouble getting good determinations, try:

1. Calming the animal so that it is truly relaxed and not moving. Sometimes having the owner hold the animal will make it much more comfortable and relaxed.
2. Checking cuff size for "OPTIMUM" fit and proper snugness.
3. Gathering more operator patience. BP measurements on awake animals are sometimes very difficult and a calm and collected measurement person is always a big plus in getting reliable BP readings. Being in a hurry is never a help.

Cold Animals: If the animal is noticeably cold, it may require 5 to 6 failed attempts in order to achieve any BP reading and clearly this is not an acceptable situation for reliable and accurate BP readings. Warm the patient with a blanket or other means before again attempting to measure BP.

Trembling Animals: It will be very difficult, or even impossible, to get accurate BP readings on a trembling animal since the rhythmic motion of the cuff can, and often does, mimic the rhythmic beat of the heart, which can result in very inaccurate readings. **Unit Configuration & Accessories**

The following table summarizes the standard accessories and optional accessories available for the petMAP *gII*:

	Product Code	Description
Standard Accessories (included with the Device)	7300 petMAP <i>gII</i>	<ul style="list-style-type: none"> ➤ CritterCuff Kit. Includes 1 each of 2.0cm, 2.5cm, 3.0cm, 3.5cm, 4.0cm, 4.5cm and 5.5cm cuff OR ➤ QuickCuff Kit. Includes 1 each of 2.0cm, 2.5cm, 3.0cm, 3.5cm, 4.0cm, 4.5cm, 5.5cm cuff ➤ BP Extension Hose (2.0 – 5.5cm cuffs) ➤ BP Extension Hose (6.5 – 13.0cm cuffs) ➤ Operator’s Manual ➤ Quick Reference Instructions
Optional Accessories	9043	AC/DC Adapter
	9008	International Adaptor Plugs
	9042	Pole Mount
	9045	Table Mount
	9015	Case
	8067	5.0cm CritterCuff
	8057	6.5cm CritterCuff
	8058	8.0cm CritterCuff
	8059	10.0cm RamseyCuff
	8060	13.0cm RamseyCuff
	8106	5.0cm QuickCuff
	8108	6.5cm QuickCuff
	8109	8.0cm QuickCuff
	8110	10.0cm QuickCuff
8111	13.0cm QuickCuff	
Replacement Items	9009	BP Extension Hose for CritterCuff sizes 2.0 – 5.5cm
	9010	BP Extension Hose for CritterCuff sizes 6.5 – 13.0cm
	8050	2.0cm CritterCuff
	8051	2.5cm CritterCuff
	8055	3.0cm CritterCuff
	8052	3.5cm CritterCuff
	8056	4.0cm CritterCuff
	8053	4.5cm CritterCuff
	8054	5.5cm CritterCuff
	8100	2.0cm QuickCuff
	8101	2.5cm QuickCuff
	8102	3.0cm QuickCuff
	8103	3.5cm QuickCuff
	8104	4.0cm QuickCuff
	8105	4.5cm QuickCuff
	8106	5.5cm QuickCuff

Software/Firmware Update: Using an SD card (16 GB or less) and two files provided by the manufacturer, the operating firmware of the device can be updated in the field by the user when such updates are made available. (See **Device Overview**, section on SD Card.)

SYMBOLS

Caution Symbol



Consult Manual Symbol



Complies with the requirements of Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast) and Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast).

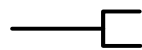


United Kingdom Conformity Assessed - Complies with the requirements of Great Britain Legislation, The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019.

Battery Icon – Indicates approximate level of batteries



AC/DC Adapter Icon – Indicates AC/DC adapter is plugged in



AC/DC adapter polarity (bottom of unit)




WARNINGS & CAUTIONS





Cuff Only. This port is solely intended for connection of a CritterCuff, a QuickCuff, a BP Cuff Extension Hose, or a RamseyCuff. Do not connect anything else to this port, especially an IV tube since that would potentially result in air being pumped into the patient with potentially fatal results. Also, fluid ingress through this port into the unit will result in severe damage to the unit.


IMPORTANT: For accurate BP readings with petMAP *gII*, only Ramsey Medical, Inc. CritterCuffs, QuickCuffs, and RamseyCuffs should be used. Improper cuff size and improper cuff fit will result in inaccurate (or no) BP readings. PetMAP requires a cuff whose width is approximately 42 - 50% of the circumference of the forearm, the hind foot or the tail of the animal. The index line on the CritterCuff should fall within the “OPTIMUM zone” shown by the dotted lines on the cuff for best results, but NEVER outside of the solid boundary lines. For proper fit, the cuff must be snug, but not painfully tight and not tight enough to cut off the circulation to the distal limb.


The sizing tabs on the QuickCuffs allow the user to tighten the cuff by squeezing. If the cuff is “snug tight” around the limb, the proper size has been selected. (see CritterCuff and QuickCuff Information).


 Do not mix rechargeable and non-rechargeable batteries. When replacing batteries, replace all batteries with the same type. Do not mix old and new batteries.


 The petMAP *gII* is intended for VETERINARY USE ONLY. Do not use on a human patient.


 Do not apply the blood pressure cuff on an extremity being used for an IV solution.


 Do not immerse the device or AC/DC adapter in water or any liquid. If the unit is accidentally wetted, it should be thoroughly dried before use.

 To ensure that the unit remains in calibration, verify calibration on a yearly basis or at anytime there is user suspicion that proper calibration may have been lost.

 If the petMAP *gII* has been dropped or damaged in any way, it should be checked by qualified service personnel to ensure proper operation prior to use.

 Use of accessories other than those specified by Ramsey Medical may result in increased electro-magnetic (EM) emissions or decreased EM immunity of the device.


 Follow local governing ordinances and recycling instructions regarding disposal and recycling of device components and packaging.


 The petMAP *gII* is designed to conform to Electromagnetic Compatibility (EMC) standard EN 60601-1-2, 2007 and will operate accurately in conjunction with other medical equipment which also meets this requirement. To avoid interference problems affecting the petMAP *gII*, do not use it in the presence of equipment which does not conform to these specifications.

POTENTIAL FOR RADIO/TELEVISION INTERFERENCE

This product 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. The product 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 particular installation. If the product does cause harmful interference to radio or television reception, which can be determined by turning the product on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the product and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

 The petMAP *gII* is not intended for use on patients being imaged with an MRI device since the petMAP device contains magnetically active materials and could result in injury if used too close to an operating MRI.

 Inaccurate readings may result when an electrosurgical unit (ESU) is used while monitoring with the petMAP *gII*. If this is suspected, discontinue use of the petMAP *gII* while the (ESU) is in use.



Do not gas sterilize or autoclave the device.

EMC Declaration

Precautions regarding Electromagnetic Compatibility (EMC) are required when using Medical Equipment. The petMAP *gII* should be put into service according to the EMC information provided in this manual.

Portable and mobile RF communications equipment can affect Medical Equipment.

The measurement accuracy and user control functions as specified in this manual is determined to be petMAP *gII* essential performance.

The petMAP *gII* is designed to conform to Electromagnetic Compatibility (EMC) standard EN 60601-1-2, and will operate accurately in conjunction with other medical equipment which also meets this requirement. To avoid interference problems affecting the petMAP *gII*, do not use it in the presence of equipment which does not conform to these specifications.

Guidance and Manufacturer's Declaration

Electromagnetic Emissions		
The petMAP <i>gII</i> is intended for use in the electromagnetic environment specified below. The customer or user of the petMAP <i>gII</i> should assure that it is used in such an environment.		
Emissions test	Compliance Level	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The petMAP <i>gII</i> uses RF energy only for its internal function. Therefore, its RF emissions are very low and not likely to cause any interference in nearby equipment. (Unit equipped with Bluetooth radios may affect nearby electronic equipment.)
RF emissions CISPR 11	Class B	The petMAP <i>gII</i> is suitable for use in all establishments, including domestic establishments and those directly connected to the public low- voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC61000-3-2	Class B	
Voltage Fluctuations/flicker emissions IEC 610000-3-3	Complies	


Electromagnetic Immunity

The petMAP *gII* is intended for use in the electromagnetic environment specified below. The customer or user of the petMAP *gII* should assure that it is used in such an environment.

Immunity test	IEC60601 test level	Compliance Level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ±1 kv for input/output lines	± 2 kV for power supply lines ±1 kv for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	>95% dip in 0.5 cycle 60% dip in 5 cycles 30% dip for 25 cycles >95% dip for 5 seconds	>95% dip in 0.5 cycle 60% dip in 5 cycles 30% dip for 25 cycles >95% dip for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Electromagnetic Immunity

The petMAP *gII* is intended for use in the electromagnetic environment specified below. The customer or user of the petMAP *gII* should assure that it is used in such an environment.

Immunity test	IEC60601 test level	Compliance Level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
			Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150kHz to 80 MHz	3 Vrms	$d = (1.17) \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = (1.17) \sqrt{P}$ 80 - 800MHz
			$d = (2.33) \sqrt{P}$ 800Mhz - 2.5GHz
			<p>where P is the maximum output power rating of the transmitter in watts (W) and is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey a, should be less than the compliance level in each frequency range b. Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div style="text-align: center;">  </div>

Recommended separation distances between portable and mobile RF communications equipment and the petMAP *gII*

The petMAP *gII* is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the device as recommended below, according to the maximum output power of the communications equipment.

Separation distance according to frequency of transmitter (m)

Rated max. output power of transmitter (W)	150kHz to 80 MHz $d = (1.17) \sqrt{P}$	180 MHz to 800MHz $d = (1.17) \sqrt{P}$	800MHz to 2.5GHz $d = (2.33) \sqrt{P}$
0.01	0.11667	0.11667	0.23333
0.1	0.36894	0.36894	0.73785
1	1.1667	1.1667	2.3333
10	3.6894	3.6894	7.3785
100	11.667	11.667	23.333

For transmitters rated at a maximum output power not listed above, the recommended separation distance in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

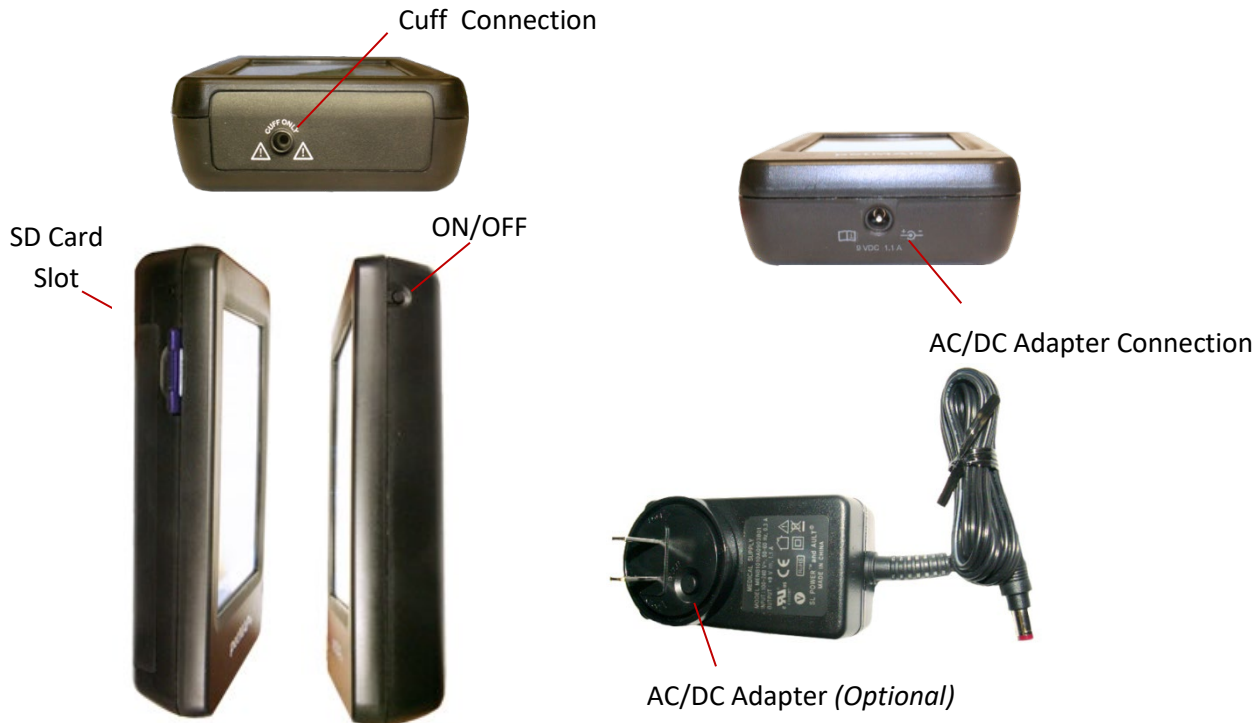
DEVICE OVERVIEW

Power/Batteries: petMAP *gII* is equipped with 4 factory installed alkaline AA batteries. (Note: completely remove, by pulling, the green plastic tag at the battery cover to activate the batteries before attempting first use.) An optional AC/DC adaptor is available for purchase – this adapter allows the petMAP *gII* to be wall powered, bypassing the batteries. The petMAP *gII* will also operate without batteries when the external AC/DC adapter is used. Note that the AC/DC adapter does not charge the batteries. Rechargeable NiMH type batteries may be used, but they must be charged using an external charger, widely available in stores and on the Internet. petMAP *gII* may also operate on 4 AA lithium batteries.

The AC/DC adapter, if purchased, is equipped with standard blades for North America/Japan. If purchased, accessories exist to configure the adapter for plug compatibility to several international options. To exchange the plug, simply press the round, spring-loaded button, twist and remove the plug supplied and replace it with the appropriate one for local use. (See instructions which accompany the International Adaptor Plugs, Code 9008.)



Controls & Connections. Note the diagrams for petMAP *gII* controls and connections.



Cuff Connection. Firmly push (with a slight twist) the male Luer connector of either a CritterCuff, a QuickCuff, or the BP Extension Hose into this slot. When using a BP Extension Hose, be sure the hose is the proper one for the size of the cuff, as marked, and it should be of the same diameter as the cuff hose. Do not attach anything other than the extension hose or a cuff to this connection (see **WARNINGS**) as doing so will result in a hazardous condition, since air under pressure is pumped through this connector to inflate the BP cuff!

SD Card. To install an SD card, orient it with the label side up and push the card into the unit until it fully engages. To remove, push in and release to eject the SD card. See additional instructions in this manual for SD card use and utility.

AC/DC Adapter Connection. The AC/DC Adapter is optional. If purchased, plug it into wall power and press the connector firmly into the connection at the bottom of the device.

Operating Display. Note the diagram for a description of petMAP *gII* display content.



Touch Screen. The touch screen is the primary method for the user to interact with petMAP *gII*. The display has several active areas (buttons) for the user to make selections, but some functions (alarm cancelation and trend display) are invoked by simply touching the screen in areas without buttons. Generally, selections are made by using a momentary *press and release* technique. A press and hold technique on buttons will restore some controls directly to their OFF position. Some operators find using both their fingertip and their fingernail at the same time easier than just using the pad of their finger tip since this fingernail technique allows better visibility of the text displayed on the button. Some find just using their fingernail works best for them. However, any technique is acceptable as long as nothing sharp is used to press the buttons on the screen.

Time of Day. Time of Day is displayed below the graphical trend in three lines where the top line is the hour of day and the next two lines are minutes.

BP Trend. The BP trend is displayed as a bar where the top of the bar is the systolic pressure and the bottom of the bar is the diastolic pressure. Heart rate is displayed in white.

Measurement History. The format for the measurement history is minute of measurement since the unit was initially turned ON, systolic value, diastolic value, MAP value (in parenthesis) and heart rate. The top value is the most recent. In the figure, the 40 by the top line of BP readings means that the unit has been ON for 40 minutes when that determination was made.

User Selections. Note the diagram for petMAP *gII* user selections. The available user selections are light blue with black text.

Blood Pressure Measurement & Related Commands



OFF
BPcycle

Press and release to set the BP measurement frequency which, when set, the unit will sound a short “beep” and display a screen message reminding the user that it is time to take another BP measurement. The available BPcycle options are STAT (BP cycles rapidly for three minutes then reverts automatically to a 2 min cycle time), 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 10 Min, 15 Min, 20 Min, 25 Min and 30 Min. Once the desired reminder frequency is selected, the user must press the BP Go/Stop button to begin the measurement – subsequent measurement reminders will be displayed at the selected interval, but BP determinations are not started automatically and must be initiated by the user. Press and hold the BP cycle button to turn the cycle mode OFF.

OFF
LoAlarm

Press and release to set the low limit alarm for systolic pressure. The available settings are 60, 80, 100, 120, 140, 160 and OFF. Press and hold to turn the alarm OFF.

OFF
HiAlarm

Press and release to set the high limit alarm for systolic pressure. The available settings are 150, 175, 200, 225, 250 and OFF. Press and hold to turn the alarm OFF.

Species
CuffSite

Press and release to set the species and cuff site which is displayed at the top. The seven available settings are DOG (ForeArm, HindFoot and Tail), CAT (ForeArm, HindFoot and Tail) and Optimize...None. The non-optimized mode should be used on any species other than dog or cat or when comparing petMAP to Doppler or other oscillometric BP devices.

BP
Go/Stop

Press and release to initiate a new reading, or to stop a BP reading that is in progress.

OFF

Save
Screen

If an SD card is in use, press to capture an image of the screen in a file on the SD card. Similarly, the unit will prompt the user at power OFF for the same feature. (See Operator’s Manual for the function of the small button, above left.)

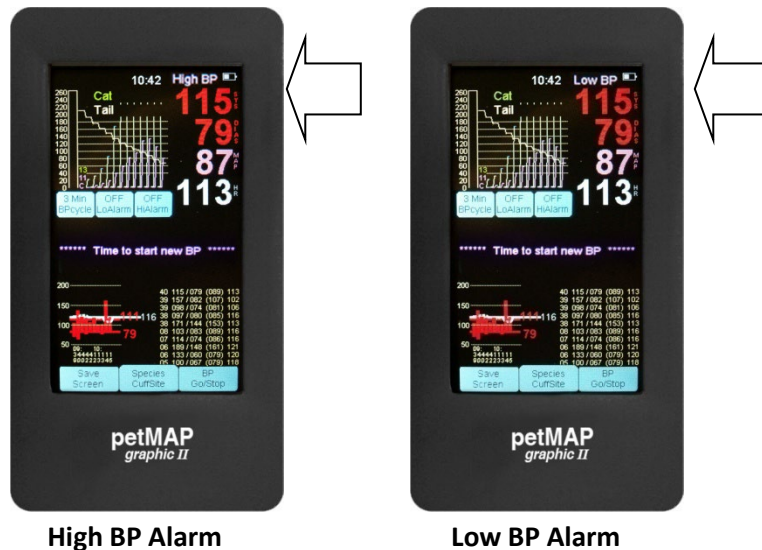
Alarms. petMAP *gII* has both User-selectable Alarms and System Alarms.

User-selectable Alarms

As mentioned above, the user may set alarms for systolic pressure (both high and low). The default setting for all user-selectable alarms is OFF.

When activated by the user, the petMAP *gII* will audibly alarm when the selected alarm settings are exceeded.

The alarms begin as a subtle chirping sound and progress to a louder continuous tone after about 20 seconds. All alarms are canceled by the user by simply touching the screen anyplace on the screen, but make sure to only touch a button when it is desired to make a change in that button's function.



System Alarms

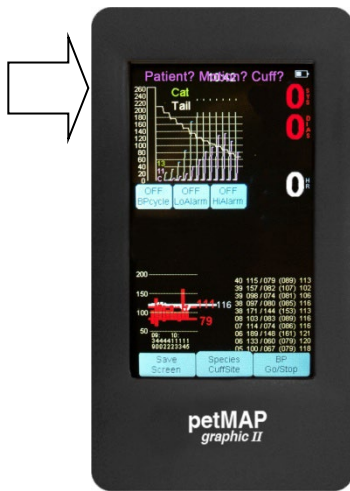
petMAP *gII* has built in System Alarms which may sound when the device detects conditions that need attention. System Alarms are not user selectable and are always enabled.

The System Alarms include:

BP measurement not achieved -The message displayed on Screen –“Patient? Motion? Cuff?” is to let the user know that adequate BP signals were not properly detected for some reason, or were substantially adversely affected by motion artifact, and that a blood pressure measurement could not be made. The user should check the patient for motion, check that the cuff is snug and sized correctly and is connected securely to the unit. Always check the animal's status using other methods since absence of good cardiac function is one reason for the – “Patient? Motion? Cuff?” error message. Review the section: “Measuring Vital Signs in Animals” in this manual for proper BP measurement technique information.

Low Battery Alarm – The message “**Replace Batteries!**” is displayed on the top of the screen and the battery level indicator will turn **RED**. When this warning is displayed, the unit will shut off automatically after a few minutes of continued use; BP may not be measurable even though the unit remains on. When this occurs, the batteries should be changed, or the AC/DC adapter should be plugged in to prevent automatic shutdown or the unit should be taken out of service.

The system alarms may also be silenced by touching anywhere on the screen, but take care not to touch a button unintentionally when canceling an alarm condition.



BP measurement not achieved



Low Battery Alarm



SD Card Functions

The petMAP *gII* contains an SD card slot which can be used to automatically record all vital signs data on a user supplied SD card for archiving directly to the SD card and for optionally transferring to a PC/MAC for long term storage, display and/or printing. The SD card can also optionally record an image of the screen at any time that a BP determination is not in progress by pressing the “Save Screen” button and/or by responding to the prompt at the time the unit is switched OFF by the user.

To use these SD card storage functions a 2, 4, 8 or 16 GB SD card must be properly inserted into the SD card slot. The card must be inserted with the card label facing up when the unit is being viewed normally and pressed firmly into the slot such that it is entirely within the slot and no portion is protruding from the side of the petMAP *gII* device. To remove the card, press it firmly further into the slot and then release pressure and the card will eject automatically. The mechanical function of the SD card in the petMAP *gII* is the same as in cameras that use SD cards for picture storage and will be familiar to most users.

It is important to note if using a 2 GB SD card, it can only accommodate 512 files on a card or errors will occur. For a 4 GB card, only 1024 files can be written on it or the same errors will be created. Should this happen, the SD card must be removed and some number of data or image files erased or a new SD card used in its place. If there is difficulty after changing the SD card, it is possible that the petMAP *gII* must be hard powered OFF (by holding the ON/OFF button down for 10 seconds, followed by a new power ON button press) or the unit will not function.

For 8 and 16 GB cards, there are many more files available, but writing time will be longer than with the smaller SD card sizes, particularly when using a 16 GB card.

Checking the available files on the SD card is easily done at the same time as when copying data from the SD card to a PC/MAC. For many users, this restriction on the number of files with a 2 or 4 GB card will not be a problem if the SD card is replaced every year. However, if the device is used in an active clinic or very active OR setting and 2 monitoring sessions are done each week day and the screen image is saved each time... in a year of use, there would be too many files for even the 4 GB SD card to hold the data, ie: $260 \text{ days} \times 2 \text{ sessions/day} \times 2 \text{ files/session} = 1040 \text{ files}$, and thus this number would slightly exceed the 1024 allowable file count on a 4 GB SD card.

During petMAP *gII* use, the data for each measurement or monitoring session is automatically captured in a .TXT file (described later in this manual) if there is an SD card in the unit. The screen image file capture (described below) is enabled by the user either by pressing the “Save Screen” button or at power OFF time. Not capturing the screen image allows a single SD card to last longer before needing replacement, but the potential usefulness of the recorded screen image will be lost. It is suggested that if recording is important to the user’s practice that SD cards be checked often and the data archived on a PC/MAC before files are erased on the SD card to create more room on the card.

Using the SD Card to update petMAP gII with new software/firmware:

To install updates of the firmware/software in the petMAP *gII* requires several steps, the first of which will result in the upgrade files being copied from the PC/MAC to an SD card. The SD card must be a 16 GB or less in capacity; it is OK to reuse SD cards that have been used previously in the petMAP *gII* and which may have old update files or old data files on them. After the SD card is loaded with the update files using a PC/MAC, the card is then used to update the software/firmware in the petMAP *gII* unit. This process is fully described in the steps below.

- 1) If you are updating from a new SD card that already has the new firmware files on it, skip to step 2) below. If you are updating from files sent to you attached to an e-mail (or copied from the petMAP website), please copy the two files that are attached to the update announcement e-mail to an SD card using your PC or MAC. If there are already files with the same filename on your SD card, copy over them with the new files and do not try to save the old update files with similar names. Once the files are copied and confirmed to be present on the SD card, remove the SD card from the PC/MAC and proceed to step 2.
- 2) Before doing the actual update, make certain that the petMAP *gII* unit has some battery charge (1/4 charge or more) or is plugged into the AC/DC adapter. Then make certain that the petMAP *gII* unit is switched OFF. Insert the SD card containing the upgrade files into the petMAP *gII* unit.
- 3) Once the SD card is securely in the unit, switch the power to ON with a single press and release of the ON button. Nothing audible or visual will happen after pressing and releasing the power button and the screen will remain blank for about 15 seconds while the new firmware is automatically installed.
- 4) After 15-20 seconds, the unit will complete the update and then automatically startup normally and display the new firmware version on the top screen. Confirm that the displayed firmware version matches that which was specified in the email you received with the two update files or in the documents you received with the preloaded update SD card you received from the company.
- 5) Once the unit is updated, the SD card can be left in the device and used for data storage since the update will only take place one time for each new set of update files. That is, after each new update process, the petMAP *gII* unit recognizes at each new power ON that it is already loaded with the same update files that are on the SD card, and consequently it does not do another update until it detects that new update files are present on the SD card.
- 6) If the unit fails to function after an attempted update, remove the SD card, hold the ON/OFF button depressed for 10 seconds (called a hard power OFF), and then reinsert the SD card and press the ON/OFF button once and wait for 15 seconds. If it still fails, restart at step 1) and try again. If unable to successfully install the update after repeating the process, contact the company for assistance.

Mounting Options

While petMAP *gII* can be used in the palm of your hand, several types of mounting options may be useful.

Pole Mount



Cage Mount



Table Mount



OPERATING INSTRUCTIONS

Prior to Use—Setting Date & Time (if needed).

petMAP *gII* is manufactured in the US Eastern time zone and will generally arrive set for that time and date. Time is set and displayed with a 24-hour clock where noon is 12:00 hrs and midnight is 24:00 hrs. If a change in time or date is needed, the user must do it manually and the built in clock-battery will subsequently retain the proper settings of clock and calendar, even when the unit is powered OFF and even if the main batteries are discharged. The expected life of the clock-battery is approximately 4-5 years and must be replaced when needed at a petMAP service center.

If needed, setting the date and time requires that the user enter the setup mode. To enter the setup mode, switch the unit OFF, and then press your thumb or finger on the screen gently and then turn the unit ON while continuing to constantly hold slight pressure on the screen. The setup screen will then display (you must continue holding pressure on the screen while this is happening) and in the upper left corner of the display, a seconds counter will begin incrementing. See Figure 1.

Observe the seconds counter at the top left of the display, and when the count equals exactly 6, release your finger or thumb from the screen—and—the date and time setting screen should appear, as in Figure 2. Touch **Set** repeatedly at the bottom of the display to scroll through the various settings fields. To change a setting, press **Inc** or **Dec**. Once everything is set properly, exit by pressing the **Ext** button on the lower left of the display. The unit will save the date/time and then power OFF automatically. Switch the unit back ON to observe proper time at the top center of the display.

Figure 1:

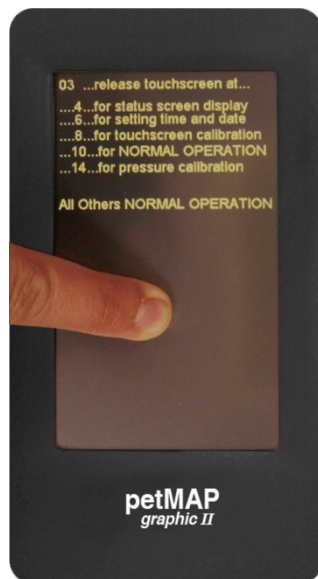


Figure 2:



Powering the petMAP *gII*. Press and release the ON/OFF button on the right side of the unit to power the device ON. The same button is used to power the device OFF.

Measuring Blood Pressure

Cuff placement. The first step for accurate determinations is to select the proper sized cuff and to apply it, snug tight, to the best limb available. The available cuff sites include the forearm, tail or hind foot. To achieve the most accurate and consistent readings, it is recommended that the forearm or base of the tail be used on cats (either works well). For dogs, the base of the tail if the preferred site, followed by the forearm. The hind foot is usually the least accurate and should only be used if the forearm and/or tail cannot be used. Generally, there is no need to shave or clip the hair or fur; however, it is critical to apply the cuff snug tight. In the case of BP measurements on long haired animals, wetting the fur to allow better compression by the cuff may be beneficial in terms of ease of cuff placement and potentially better accuracy.

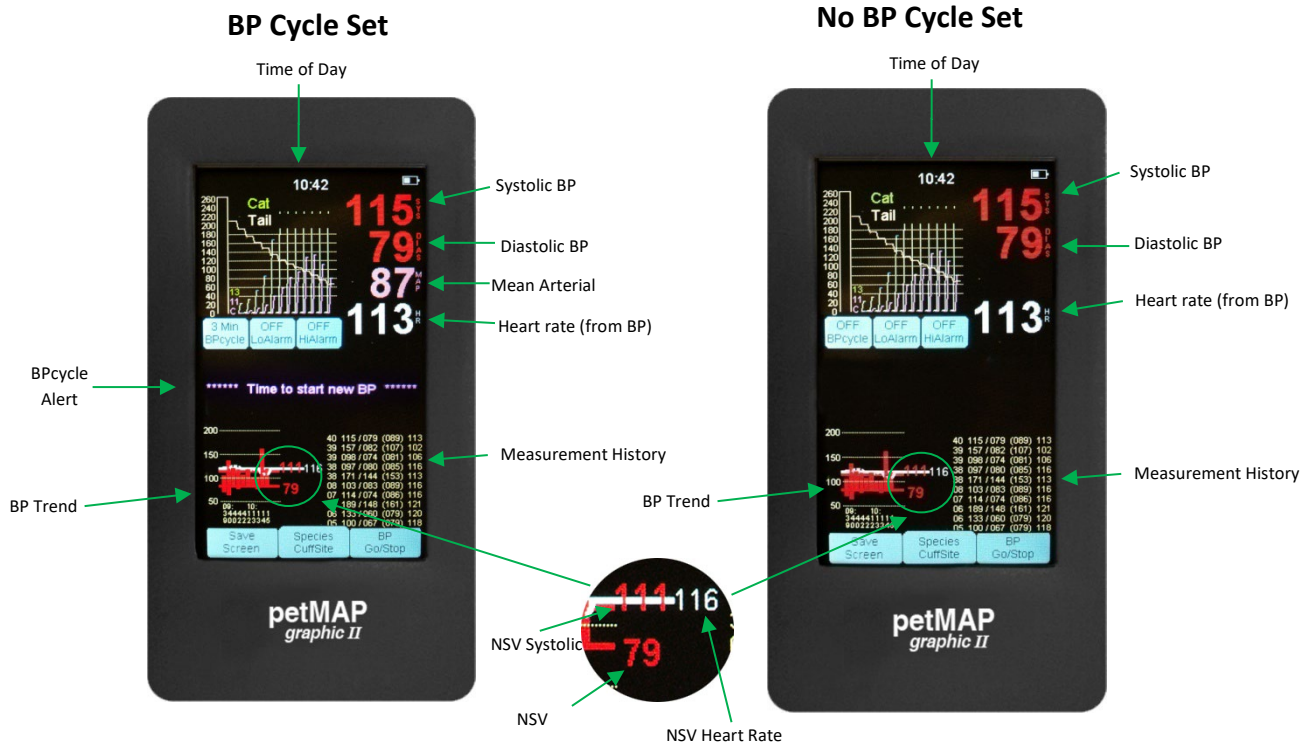
For species other than cats and dogs, follow the BP basics with respect to cuff sizing and placement: 1) place the cuff on a limb that is as close to heart level as possible, since there is an offset of +/- 2 mmHg for every inch of vertical difference between the heart and the cuff, 2) use the correct sized cuff, and 3) there should be no pressure on, nor any movement of, the limb or the animal during a BP measurement. The Species/Cuff site setting should be Optimize-None.

BP extension hoses: petMAP *gII* is supplied with two BP extension hoses, which can be used to increase the distance between the petMAP *gII* and the cuff. The extension hoses are approximately four feet long and come in two different sizes. One size is used with the smaller cuffs (2.0 – 5.5cm) and has a smaller diameter which is the same size as the smaller cuff hoses; the other extension hose is used with larger cuffs (6.5 – 13.0cm) and has a larger diameter as do the larger cuffs. It is extremely important that the proper extension be paired with the cuff being used. However, in exceptional cases of very difficult patient positioning, it may be necessary to join the two different diameter extensions together to reach a remotely placed patient, but some degradation in accuracy and performance should be expected if this is done.

petMAP settings: Using the Species CuffSite button at the bottom of the screen, press and release to set the species and cuff site appropriate for the patient being measured. There are three settings for dogs (forearm, hind foot and tail) and the same three for cats. The settings are displayed at the top center. Using these settings, which are referred to as “optimizations”, will improve the correlation of the reading results to intra-arterial pressures based on petMAP’s unique algorithms. If the species being measured is not a dog or a cat, the seventh setting, the “non-optimized mode”, should be used. The non-optimized setting should also be selected if attempting to compare readings from other BP devices to the petMAP.

Taking BP when no BP Cycle has been set

petMAP *gII* is used with no BP Cycle set when the user wants to be in control of the timing and frequency of BP measurements and does not want the automatic prompts to measure a new BP. The user simply leaves the BPcycle setting OFF. For each desired reading, touch the BP Go/Stop button to initiate (or stop) a BP reading. The cuff will inflate automatically after the BP determination is started. During cuff pressure deflation, petMAP *gII* will display the cuff pressure and the oscillometric waveform. Using the graph of the oscillometric envelope, the user can discern the quality of the determination (See examples of good, bad and ugly readings later in this section). If a determination is developing a bad or ugly waveform, stop the determination, calm the patient, adjust the cuff if need be and then try again.



If the MAP value is desired while taking BPs with no BP Cycle set, simply touch the screen area below diastolic BP for it to be displayed.

By default, the bottom area of the display contains both a graphical and a tabular display of measured data. In addition to the measured data, the petMAP *gII* displays the NSV in the graphical display area. NSV stands for **Nominal Session Value**, a unique and proprietary petMAP feature. After the second reading, NSV is automatically calculated after each subsequent reading in the BP measurement session. NSV is not a straight average of the previous readings—all of the BP session readings are analyzed to result in a robust statistical measure of the patient's nominal BP. Outliers are eliminated and more averaging weight is given to the readings that are more similar to each other and near the median BP value measured. A trend only display can be selected at anytime by touching the graphical data display area; another touch returns it back to the history display.

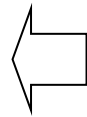
Taking BP with BP Cycle set

petMAP *gII* can be used with the BP Cycle set when multiple BP readings are desired to be measured at a specific user selected frequency. The unit will sound a short “beep” and display a screen message reminding the user that it is time to take another BP measurement. The BP cycle time is set by touching the BPcycle button repeatedly until you arrive at the desired time interval. The interval settings available are STAT (rapid readings for 3 minutes and then it will automatically switch to the 2 min cycle time), 1Min, 2Min, 3Min, 4Min, 5Min, 10Min, 15Min, 20Min, 25Min and 30Min. Returning to OFF can be accomplished by either cycling through all of the settings or by pressing and holding the BPcycle button until OFF appears. Once the BPcycle time is set, the user must press the BP Go/Stop button to begin the measurement – subsequent measurement reminders will be displayed at the selected interval, but BP determinations are not started automatically, the user must initiate each reading by pressing the button.

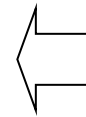
BP Alarms

High and low alarms can be set for systolic pressure. To set alarms, repeatedly touch the BP HiAlarm and/or LoAlarm buttons until the desired alarm limit is set. If the measured value exceeds (higher or lower) the alarm limit set, the unit will both alarm and display a message at the top of the display. Silencing alarms is done by touching the display anyplace, but take care not to touch a button unintentionally.

High BP Alarm

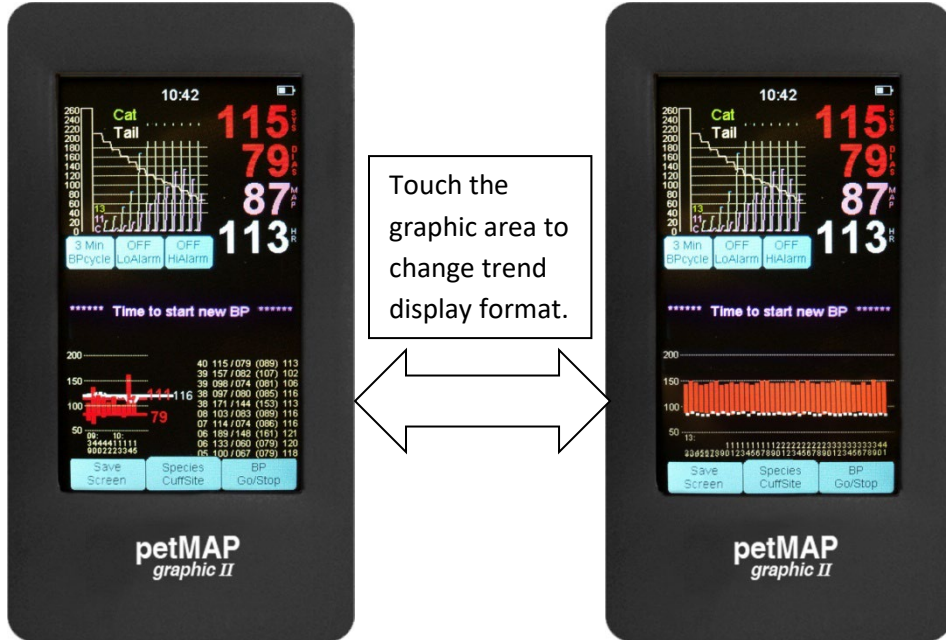


Low BP Alarm



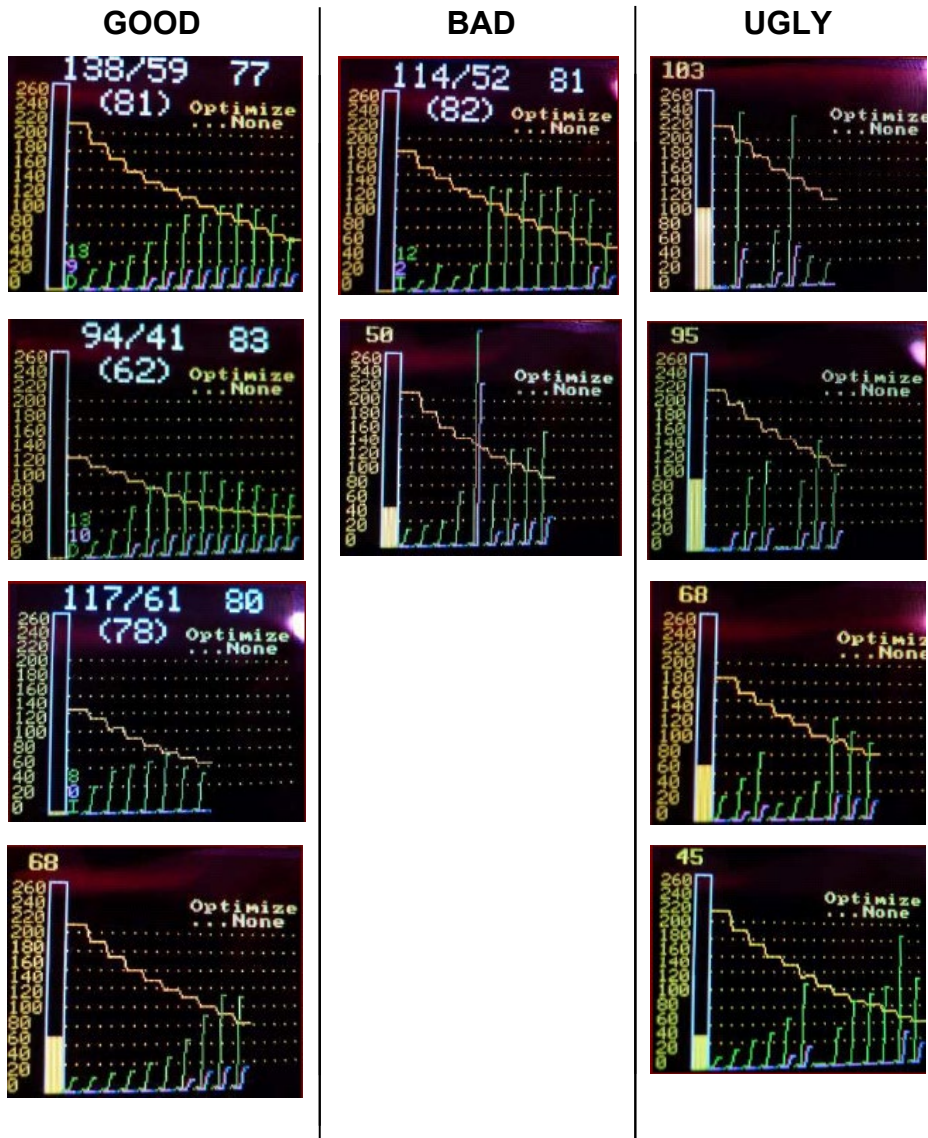
As previously mentioned, there are two different trend data display formats.

The display formats are shown below and can be changed from one to the other by simply touching the graphic trend area of the display at any time.



The GOOD, the BAD, and the UGLY . . .

BP determinations that are showing ragged oscillometric envelopes like the BAD and the UGLY examples below should be terminated while in process by pressing the BP Go/Stop button, and appropriate corrective action taken such as checking the fit of the cuff and calming the patient to reduce motion before a new determination is started.



Blood Pressure Values in Cats and Dogs

Blood pressure (BP) is most accurately measured directly using an intra-arterial catheter. Knowing an animal's BP is often required for diagnosis and treatment. However, since intra-arterial pressures are often impossible or impractical to measure, a variety of indirect measurement devices (Doppler and oscillometric) have been developed to permit estimation of an animal's BP. It is important to note that the different methods and different brands of indirect BP devices will likely produce different BP values in the same animal, as each estimates blood pressure in a somewhat different way. Further, all indirect methods are dependent on the state of the animal and, to some extent, the experience and skill of the user.

petMAPs have been designed to better correlate with intra-arterial pressure readings through optimizations for species and cuff site. The result of this better correlation with intra-arterial readings is that petMAP's readings will almost always be 10-20% higher than Doppler or other oscillometric devices since they do not have the petMAP Proprietary Optimization (PPO). Consequently, if correlation of petMAP BP readings with other BP devices (other than direct intra-arterial readings) is desired by the user, petMAP should be used in the non-optimized mode.

"Normal" BP in companion animals varies with the species, age of the animal, method used for BP determination, and the emotional state of the animal as a result of animal handling and other circumstances. "Normal" systolic values can range from 110 to 160 mmHg and most diastolic values range from 55 to 100 mmHg, if the animal is undisturbed and at rest. Normal BP is different for cats and dogs and can also vary by breed within species.

Hypertension is generally characterized as pressure >170/110 mmHg in relaxed animals; hypotension is pressure <90/50 mmHg in the awake animal. However, much of the BP data that has been used to establish these ranges has been measured with indirect devices and, as previously mentioned, most of these devices (Doppler and oscillometric) underestimate the intra-arterial systolic pressure by 10-20%.

The study of hypertension and its treatment is an evolving subject in veterinary medicine. It is suggested that veterinarians refer to the literature, including the ACVIM Consensus Statements, published on this topic, but remember that the data in the literature is mostly from BP measurements using BP devices that do not have PPO.

Data Recording and Transfer—SD Card

File Name Format for Data .TXT Files

If an SD card is inserted into the SD card slot, files of the data measured at each measurement session will be recorded in a file on the SD card in the .TXT format (that is, in a simple text format). The filename naming convention is comprised of the MonthDayHourMinute of the time when the file is actually written to the SD card. For example, if the last BP determination of a session was done August 28 at 15:36 hours; the name of the text file containing all the readings on the SD card would be named: 08281536.TXT (*the naming convention for the Save Screen .JPG files is different; please refer to that section for format*). Since the year is not a part of the file name, if multiyear retention of the saved data is important, the SD card should be replaced at least once a year to prevent the possibility that a previous file would be over written by a new one saved at the exact date and time as an old one already on the SD card from a previous year.

Measurement and Monitoring Data Recorded in Text on the SD Card

During use, the information generated in each BP determination will be recorded immediately after each determination in a single line of a text file on the SD card. Care should be used when removing the SD card so that it is not being done right at the end of a determination since this could corrupt the file being updated, and potentially harm the SD card itself. (See note at the bottom of this section for more information on corrupted files or SD cards).

The format of text output recorded on the SD card is as shown in the example below. (In the top line of column labels, Dys stands for diastolic). Note that the HR obtained during the BP determination is based on the pulsations in the limb with the BP cuff.

HR:MN:SC	Sys	Dys	(MAP)	HR	Temp	O2	HR
18:49:24	202	148	(168)	080			
18:50:18	202	147	(169)	082			
18:51:07	202	147	(168)	081			
18:51:56	199	149	(168)	080			
18:52:50	201	147	(168)	080			
18:53:38	201	149	(168)	080			
18:54:27	202	147	(167)	079			
18:55:23	200	149	(168)	081			
18:56:23	201	150	(168)	081			
18:57:24	202	147	(169)	078			
18:58:19	152	099	(113)	079			
18:59:07	147	102	(116)	080			
18:59:50	153	100	(115)	081			
19:00:36	147	098	(113)	081			

Importing text file into Excel

The text data file can be archived and printed directly from a PC/MAC without any changes. However, if graphics are desired, the text data file can be imported into an Excel worksheet easily by following the steps below. The steps in this example are for Excel 2007. If you have a different version of Excel, the data can also be imported, but the steps may differ a bit.

1. Insert SD card into designated slot on computer.
2. Open a blank Excel worksheet.
3. Select the Data tab in the tool bar of the Excel worksheet. In the *Get External Data* section of the tool bar (right most section) select **From Text**.
4. A window will pop up for you to select the text file you are importing. Once you have selected the file, click Open.
5. The next window that pops up will ask you to select the original data type and in what row to begin the import. Select Fixed width for the original data type, and row 1 to start the import. Click Next.
6. The following window will allow you to adjust the widths of the columns if you feel necessary. Click Next.
7. The last window allows you to select the data format for each column. As a default, all columns are set to General. It is recommended that you select the (MAP) column by clicking on it, and at the top right of that window selecting **Text**. This adjustment is made so the MAP values will show up in a parenthesis and not as negative numbers. Click Finish.
8. A small *Import data* window will pop up. Select okay.

Your data is now imported, should appear on the worksheet and can be graphed using normal Excel graphing commands.

Screen Image Capture in JPG Format (.JPG) to the SD Card

If there is an SD card in the SD card slot, the user can save the screen to a .JPG file by pressing the Save Screen button at any time or by setting the automatic screen save option (described below). Also, whenever the petMAP *gII* unit is switched OFF using the power button on the upper right of the unit (press and release), just before actually shutting the unit OFF, the screen will display a message at both the top and bottom of the screen: "Touch screen to save to SD card". When the user sees this message, if the user then presses any place on the screen within 3 seconds, the press will signify that the user would like an image of the screen at that time to be written to the SD card. After the press, the unit will remain ON while copying the image to the SD card, a process that takes about 2-3 seconds. After creating the screen image .JPG file on the SD card, the unit will automatically switch its power OFF and

the screen will go blank as the unit is now OFF. The file created on the SD card is in .JPG format which is an image format that is easily read and displayed using a PC/MAC. If the user does not want to copy the screen image to the SD card, by not touching the screen for 3 seconds, the unit will switch its power OFF, and the screen image will be lost forever. Note that the option to save the screen image onto the SD card is available to the user at any time by pressing the “Save Screen” button on the bottom left of the unit.



Automatic Screen Save

If the petMAP *gII* has an SD card in the card slot, there will be a very small button on the lower left of the screen, just above the “Save Screen” button (see figure 1). This button controls the automatic screen save function and is OFF at power ON. By pressing the button (since it is so small, a fingernail or the tip of a hemostat or pencil can be useful if need be), the automatic save intervals are selected.

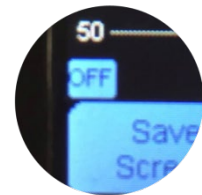


Figure 1

The button will change sequentially after each press as follows:

- Off Default power On condition, no automatic screen saves.
- qBP Saves the screen image automatically in JPG format after every BP determination.
- q3M Saves the screen image automatically in JPG format every 3 minutes.
- q2M Saves the screen image automatically in JPG format every 2 minutes.
- q1M Saves the screen image automatically in JPG format every 1 minute.

Wf- This selection saves waveforms displayed on petMAP to the SD card. Waveforms are saved as .wav files that can be viewed on a PC.

Wf+ This selection is identical to Wf- but, in addition, will automatically save screen after each BP determination.

NOTE: The above two settings (Wf- and Wf+) are only useful for petMAP units that generate waveforms, so they would not apply to gll units.

File Name Format for Save Screen .JPG Files

When the screen is saved to the SD card, the file name is constructed by using the date and time that the screen was saved and the file was created and written to the SD card. The file name format is MonthDayHoursMinutes, where the months are represented by the numbers 1-9 for January-September, and 'O' for October, 'N' for November, and 'D' for December, and the hours and minutes are each 2 digits numbers. For example, a screen saved on April 14 at 2:18pm would be named: 4141418A.JPG The 'A' is appended to signify that this is the first screen saved during the date and time of 4141418. If the user saves the screen again during the time 4141418 (ie, during the very same minute), the screen image would be saved with the file name 4141418B.JPG, and then 4141418C.JPG and so forth. In this way, multiple screen images can be saved and uniquely named within the same minute if desired. As another example, if the date and time of the screen save is December 9 at 8:30 am, the file name would be D090830A.JPG. As with the .txt files, since the year is not a part of the file name, if multiyear retention of the saved data is important, the SD card should be replaced at least once a year to prevent the possibility that a previous file would be over written by a new one saved at the exact date and time as an old one already on the SD card from a previous year.

*(Note regarding SD card data corruption: Should SD card data corruption inadvertently occur no matter what the cause, sometimes the data can be recovered by responding affirmatively to the operating system's question regarding "Do you want to...Scan and fix files on the SD card" when the SD card is placed into a PC/MAC. This often "fixes the SD card", but it is not always successful. Should the SD card be unreadable by the PC/MAC, it can usually be reformatted successfully and used again, but this permanently removes all data on the SD card and this reformatting must be done only by an experienced and knowledgeable computer operator! Anyone doing this reformatting of the SD card **MUST DO IT VERY CAREFULLY AND CARE MUST BE TAKEN TO RE-FORMAT SPECIFICALLY THE SD CARD...**AND NOT BY MISTAKE REFORMAT ONE OF THE COMPUTER'S HARD DRIVES WHICH WILL DESTROY ALL DATA ON THE PC or MAC!!! Unfortunately this user mistake sometimes happens and it is catastrophic! Be careful.)*

CritterCuff™/RamseyCuff™ Information

The Ramsey Medical, Inc. CritterCuffs and the larger sized RamseyCuffs are designed specifically to be used with petMAP devices. Using any other brand of cuffs may result in inaccurate BP readings, or even a failure to function, and is strongly discouraged for these reasons.

It is important to have the proper size cuff and the proper snug fit. Improper size and a loose cuff application on the limb will result in inaccurate BP readings or even a failure to determine the BP.

CUFF SIZE

Choose a cuff whose width is approximately 42-50% of the circumference of the leg or tail of the animal. Best results and accuracy will be achieved by using a cuff size where the cuff's index line is in the "OPTIMUM zone" marked on the cuff by dotted lines. If this is not possible, NEVER exceed the solid boundary lines!

CUFF FIT

The cuff should fit "snug tight", i.e., tight enough to get all of the air out of the cuff (attach cuff to animal BEFORE attaching the cuff hose to the petMAP *gII*), and tight enough so that it will not slip off of the limb. However, the cuff should not be so tight that it hurts the animal or is so tight it functions as a tourniquet when not inflated. *The proper size cuff for the limb chosen and its "snug tight" application are absolutely essential if good results are to be achieved! Remember also to set petMAP *gII* for species and cuff site before use, but always before recording readings on the animal's chart.*



When wrapping the cuff around the animal's limb, the index line should fall between the two "OPTIMUM zone" dotted lines, as shown, but NEVER out of the solid boundary lines.

**OPTIMUM
zone**

**INDEX
LINE**



QuickCuff™ Information

The Ramsey Medical, inc. QuickCuffs are designed to be used with petMAP and other veterinary blood pressure measurement devices that use a Luer connector.

It is important to have the proper size cuff and the proper snug fit. Improper size and a loose cuff application on the limb will result in inaccurate BP readings or even a failure to determine the BP.

CUFF SIZE

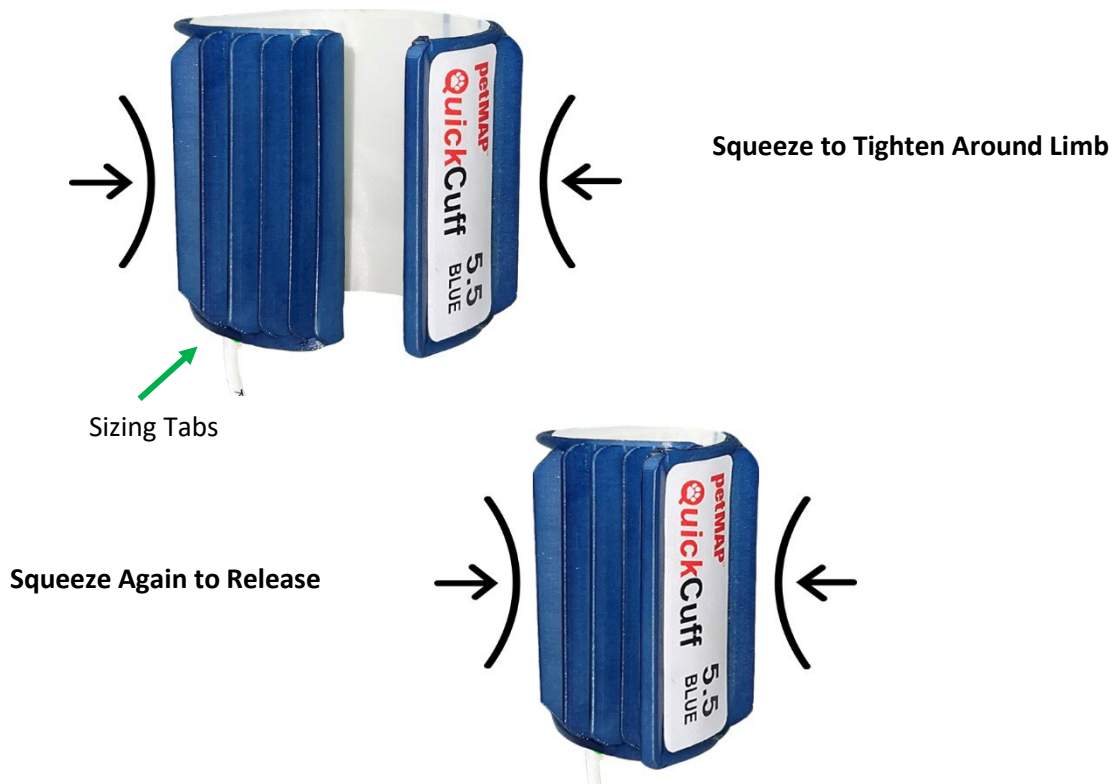
Choose a cuff whose width is approximately 42-50% the circumference of the leg or tail of the animal. Best results and accuracy will be achieved by using a cuff size where the cuff fits snug tight after the sizing tabs have been secured by squeezing the cuff around the animal's limb.

CUFF FIT

The cuff should fit "snug tight", i.e., tight enough so that it will not slip off the limb. However, the cuff should not be so tight that it hurts the animal or is so tight it functions as a tourniquet when not inflated.

For tapered limbs, adjust the cuff to match the patient's limb shape using the sizing tabs. Ensure a smaller fit for the narrower part of the limb and a larger fit for the wider part.

The proper size cuff for the limb chosen and its "snug tight" application are absolutely essential if good results are to be achieved! Remember also to set petMAP+II for species and cuff site before use, but always before recording readings on the animal's chart.



General Cuff Information

There are various sizes of CritterCuffs and QuickCuffs available to cover the range of limb sizes commonly encountered in companion animals. For accuracy of the reading, it is essential that the proper cuff be selected and applied snugly to the limb. Only CritterCuffs, QuickCuffs, and RamseyCuffs should be used with the petMAP since the cuff and unit form a system specifically designed for sensitive and accurate blood pressure measurement in companion animals. The “OPTIMUM zone” on the CritterCuffs and RamseyCuffs is petMAP specific.

Seven CritterCuffs **OR** QuickCuffs are packaged with each petMAP. Their sizes are: 2.0 cm, 2.5 cm, 3.0 cm, 3.5 cm, 4.0 cm, 4.5 cm, 5.5 cm. Larger cuff sizes (6.5 cm, 8.0 cm, 10.0 cm and 13.0 cm) and a 5.0 cm cuff are available at extra charge. Call Customer Service for more information (800-231-6370 or 813-289-5555).

CUFF SIZE IS IMPORTANT!!

The CritterCuffs may be used for dogs and cats on any of the three recommended positions: forearm, hind foot or tail. For best accuracy and reliability, the size of cuff should be chosen so that on the CritterCuff, the cuff's index line falls within the “OPTIMUM zone” of the cuff indicated by the dotted lines when the cuff is snugly applied to the selected limb. In no circumstance should the cuff index line be outside the solid boundary lines.

For best accuracy and reliability with a QuickCuff, the size of the cuff should be chosen so that when the sizing tabs are secured by squeezing the cuff around the limb it is “snug tight”.

MAINTENANCE

Device

Cleaning petMAP gII: As needed, *clean* the device with a soft cloth dampened with warm water and a mild detergent solution. Gently rub the soiled area until clean. Use a soft cloth to dry the device. Do not use abrasive cleaners, alcohol or cleaning solutions which contain alcohol. Do not immerse in water or other liquids. Care should be taken to prevent water or cleaning solution from running into or onto the screen, connector openings or crevices. As needed, clean the display window using a soft, lint free cloth sprayed with an alcohol free glass cleaner. Do not use paper towels as they may scratch the surface.

To *disinfect* the device, use 0.1% bleach (generally prepared by mixing 1 part household bleach with 9 parts water) followed by a wipe with regular water. If it is necessary to remove blood or body fluid, use a more concentrated bleach solution.

The ratio of bleach to water is dependent on the concentration of bleach purchased. The following chart provides guidance and the dilution ratio should be adjusted, as necessary, for the strength of the bleach.

Original strength of bleach (% sodium hypochlorite)	Bleach (ml)	Water (ml)	Total (ml)	Dilution ratio (bleach:water)
1%	100	900	1000	1:10
2%	50	950	1000	1:20
3%	33	967	1000	1:30
4%	25	975	1000	1:40
5%	20	980	1000	1:50
6%	17	983	1000	1:60

Cuffs

Cleaning: Clean cuffs with a damp cloth or hand wash in warm water with mild detergent or soap; do not allow water to get into the cuff tube. Pat cuff dry initially on a towel, and air dry until fully dry and ready for use.

To *disinfect* cuffs, use 0.1% bleach (see above) followed by a wipe with regular water. If it is necessary to remove blood, body fluid or other contaminants, use a more concentrated bleach solution.

After covering the ends, the cuff extension hoses may be cleaned with a soft cloth dampened with germicidal solution, but do not allow any fluid into the lumen of the tubes since fluid in the tube could damage the petMAP severely!

Battery Replacement

petMAP *gII* is originally configured by the manufacturer with 4 AA alkaline batteries. Lithium or rechargeable NiMH batteries may also be used. The device can operate from good batteries (the approximate remaining battery life is displayed in an icon at the top of the display) or from line power using the AC/DC adapter (optional). When the AC/DC adapter is plugged in, it supplies wall power for the device's operation, bypassing the batteries, but it does not charge the batteries.

To replace the batteries, follow these steps: (Note: if a cover is being used, it must first be removed)

- 1) Unplug the petMAP *gII* AC/DC adapter, if in use.
- 2) With the unit powered OFF, simultaneously press the battery cover latch while pressing down on the cover near the latch. Slide the cover away from the unit.
- 3) Remove the batteries.
- 4) Noting the polarity, insert the replacement batteries.
- 5) Slide the cover back into place, confirming that the latch has engaged.

TROUBLESHOOTING

Unit will not turn ON, or shuts OFF, after attempting a power ON .

1. If the unit is new or recently serviced, make sure the battery insulator strip has been removed.
2. The batteries are likely low or defective. Change the batteries. Use known good AA batteries (fully charged NiMH, Alkaline, or Lithium) when replacing. Alternatively, plug in the AC/DC adapter (if purchased) to operate the unit from wall power.
3. Hard power OFF reset: Hold the power switch down for 10 seconds, then release it, and then press it once again to turn the device ON. This is like rebooting a computer and should be done anytime there is a problem with the operation of the unit.

Difficulty obtaining consistent BP readings (greater than +/- 15 mmHg from reading to reading).

1. Animal is moving. Calm animal until they are relaxed so determinations can be made during periods of non-movement.
2. Wrong size cuff used; use a cuff sized so that the index line is in the "OPTIMUM zone" when snugly fitted to the limb.
3. Cuff not properly snug, i.e., not tight enough on initial placement. Tighten cuff on the limb, but not constricting tight.
4. Cuff is not in correct location on forearm, hind foot, or tail. Reposition cuff or move to another approved site and set petMAP using Species/Cuff Site button.
5. Determine if the cuff, hose or connector is leaking air. Observe the deflation steps on the screen during a BP determination to confirm that each step is about 10% of the cuff pressure before the deflation step. Test the cuff on your finger to observe the deflation steps to determine whether the cuff or hose is leaking. Try another cuff if in doubt to confirm proper operation. Discard any leaking cuff, as using a leaking cuff will result in inaccurate readings.

Cuff will not inflate.

1. Check cuff connections, both at the cuff port of the device and any connections between the cuff and the extension hose. Check cuff and extension hose for leaks or damage.
2. Verify that the pump is actuating (you will hear the noise and feel a slight vibration) when BP Start/Stop is pressed. If not, contact Customer Service.

Screen buttons don't respond in the expected way to touch.

It's possible that the touchscreen needs recalibration. To do so:

1. Turn the unit OFF.
2. To enter the setup mode, press your thumb or finger gently on the screen and then turn the unit ON while continuing said pressure on the screen. When the counter in the upper left reaches exactly 8, release your thumb or finger from the screen and follow the screen instruction (See Figure 1).

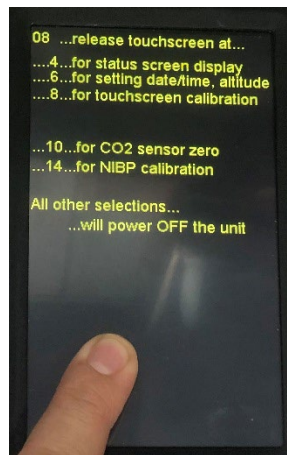


Figure 1

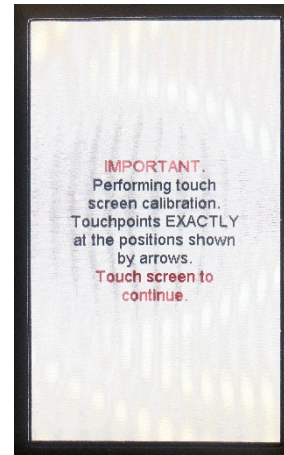


Figure 2

3. Follow the prompts on the screen by touching the arrows with a pointed object like a stylus or pencil. Do not use a sharp pointed object in order to avoid damage to the display (See Figure 2).
4. The unit will acknowledge each successful touch by beeping and counting down before moving to a different screen location.
5. Once all three locations have each been touched three times, touch the screen anywhere to exit the screen calibration function.
6. When the unit exits the setup mode and returns to its normal operating mode, verify that the touch buttons work as expected.

WARRANTY/SERVICE

Warranty

Ramsey Medical, Inc. warrants that the **petMAP gII** device, when new, is covered by a one year warranty against defects in materials and workmanship. All warranties begin at the date of original purchase from CardioCommand, Inc. or its authorized distributors.

petMAP *gII* accessories, including blood pressure cuffs, are warranted to be free from defects in materials and workmanship for 90 days.

Our obligation under this warranty is limited to repairing or, at our option, replacing defective parts or entire units without charge, if such defects occur as a result of normal use with prompt notification.

Damage resulting from inappropriate use or physical abuse is not covered by the warranty.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE EXPRESSLY LISTED ABOVE. IN ADDITION, THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Customer Service & Repairs

All units returned for service and/or repairs (warranty and non-warranty) must have a RMA obtained by calling Customer Service at CardioCommand, Inc. The RMA number obtained should be written on the outside of the shipping container and the device should be sent to:

CardioCommand, Inc.
4920 W. Cypress St., Ste. 110
Tampa, FL 33607

Phone: 800-231-6370
813-289-5555

Fax: 813-289-5454

Please include a complete description of the difficulty with all units returned for service.

SPECIFICATIONS

For Veterinary Use Only

Method of BP Measurement: Oscillometric. Accuracy optimized for species (dog/cat) and blood pressure cuff site (forearm, tail, hind foot).

Parameters Measured:

BP: Systolic, Diastolic, Mean Arterial Pressure (MAP)

Heart Rate

Blood Pressure Ranges:

Systolic: 40 – 265 mmHg

Diastolic: 25 – 195 mmHg

MAP: 30 – 200 mmHg

Heart Rate Range: 40 – 240 BPM, +/- 5% or 3 BPM, whichever is greater.

Power: 4 AA batteries. Supplied with alkaline cells. Capable of using NiMH rechargeable batteries (charged externally) or Lithium batteries (not rechargeable). Unit can also be powered from wall power using its AC/DC adapter (optional).

Battery Life: Variable depending on mode of use. The approximate battery life (continuous use) for the various approved battery types is as follows:

Alkaline. 4-5 hours

NiMH (rechargeable). 8-9 hours

Lithium. 9-10 hours

Operating Environment:

Temperature: 10°C – 40°C (50°F – 104°F)

Humidity: 15% - 85%, non-condensing

Altitude: -500 feet (152 meters) below sea level to 8000 feet (2438 meters) above sea level

Storage Temperature: -20°C to 55°C (-4°F to 131°F)

Dimensions: 5.97”H x 3.15”W x 1.26”D

Weight : 1 pound (0.46 Kg, approximately, with batteries)

HISTORY OF REVISIONS

Document #/ Revision	Date	Comments
R400194-A	Dec 2013	Manual Released ECO 131204
R400246-A	June 2014	Issued new manual part number. Documents changes with software Rev. 7.59. Features include addition of "Save Screen", MAP display option and corrections to the SD Card section. ECO 140606
R400246-B	Jan 2018	Documents changes with software REV V9.41q. Features include calibration retention improvement, auto-save feature and changing the file naming scheme for screen save images. ECO 180101
R400246-C	Nov 2019	Documents changes with software REV v9.47e including BP algorithm improvements and auto-save function. Adds Touchscreen Calibration instructions. ECO191104
R400246-D	May 2020	Minor updates, including cleaning instructions. ECO 200502
R400246-E	October 2022	Manual updated with UKCA mark and standard. ECO 221008
R400246-F	July 2024	Updated manual with QuickCuff information. ECO 240702

petMAP *gII* is developed by:

**RAMSEY
MEDICAL INC**

Tampa, FL 33607
USA

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**petMAP *gII* is manufactured,
distributed and serviced by:**



4920 W. Cypress St., Ste. 110
Tampa, FL 33607

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